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future days are back
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HARDWARE REVIEW: THE COMMODORE PET

Coming Soon: THE A500 MINI

Remembering SIR CLIVE SINCLAIR

DEMONS OF ASTEBORG

REVIEW FOR SEGA MEGADRIVE - INTERVIEW WITH THE DEVELOPERS -

- MSX GHOST COMMAND - ABACUS SUPER C for C64 -
- EVERCADE VS - AMIGA BEST GAMES FOR 2 PLAYERS -
- Lots of game reviews! ... And more! -

The deception of Moore's law

Writing the editorial is never easy. Sometimes the arguments come by themselves, other times you have to think about it for a long time to find an interesting track. This is why we often alternate, each of us has something to say and the editorial and the fourth cover are the place to give voice to our thoughts, far from the technicalities of the other articles. This time I wanted to talk about the many editorial initiatives that have arisen and/or restarted in this last period, but the more I thought about it, the more I realized that I had not yet found the right narrative key; it is better to defer to one of the next issues... The light at the end of the tunnel came this afternoon, when I received and paginated the article for the fourth cover signed by **Mic the Biker Novarina**.

His reflection struck me and made me think. In recent years we have all experienced the fascination of increasingly powerful machines, able to perform increasingly complex calculations in ever shorter times. It was a real race, by the manufacturers of microprocessors to design and sell CPUs increasingly powerful and faster to feed to an audience hungry for performance and benchmarks... A race well represented by the famous **Moore's Law**, in times not suspicious. In 1965, in fact, Gordon Moore, co-founder of Intel, had assumed that the number of transistors in microprocessors would double every 12 months or so. This resulted in a greater number of calculations that the microprocessor could do in the same fraction of time and consequently in a higher speed of the computer. This hypothesis, as we have seen, has proved to be accurate given that today it is still almost valid, even if with a deviation of a few months (i.e. the number of transistors doubles on average every 18 months).

But then, after so many years spent in buying increasingly powerful machines, we suddenly stopped our race and started another one... backwards! We are now buying older and older machines, even more primitive and consequently slower ones... Almost to defy Gordon Moore's law!

Obviously to manage the tide of information and data that we take for granted nowadays, we need hyper-fast machines and no one would ever dream of entrusting delicate calculations to machines of 40 and past years... But perhaps, happiness, at least for some of us, passes through a small heart that we want to hear beating. And the less transistor this heart contains, the stronger its heartbeat and the stronger we feel it pulsing. On the other hand, our mind may contain thousands of pieces of information, but its speed of calculation is relatively slow. So let's have slow machines, with which we can dialogue on an equal footing, but with a large memory, capable of containing all our memories in digital form. Sooner or later we will take them back into our hands to satisfy our technical and/or playful curiosity.

Francesco Fiorentini

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Philips Microprocessor Development System PDMS II

by Alberto Apostolo

Among my school memories, there is also the Philips Microprocessor Development System PMDS II (Figure 1 is obtained from an advertisement in the Italian magazine Bit #42 , Sep. 1983).
I had used PMDS II to perform some tests on the assembly programming of a parallel-serial interface based on a circuit controlled by a Zilog Z80 (designing this interface constituted a complex school exercise divided into several lessons).

To give the commands of the UNIX operating system and access the emulation programs of the Z80 microprocessor, the students had a small summary written by a willing laboratory assistant.
However, I do not remember if the ITIS in Foligno (PG), today ITT Leonardo Da Vinci, had a PM4421 (single-user) or PM4422 (multi-user) model.

PMDS II was presented in Italy in June 1982 on three occasions (15/6 Hotel Michelangelo in Milan, 16/6 Hotel Eurocrest in Bologna, 18/6 Hotel Leonardo in Rome) as reported at the time by the Italian magazine Sperimentare (page 17, June 1982).
The PMDS II could be connected to the PM4300 Universal microC Instructor device (Fig.2).
The executable programs developed on PM4421/22 were copied to the RAM of PM4300, which functioned as an emulation probe to check the contents of the registers and memory, check the execution flow of the instructions, etc.
The technical data summarized in the box were obtained by reading magazines such as Bit #42 because there is no official documentation on the Internet.

Fig.1

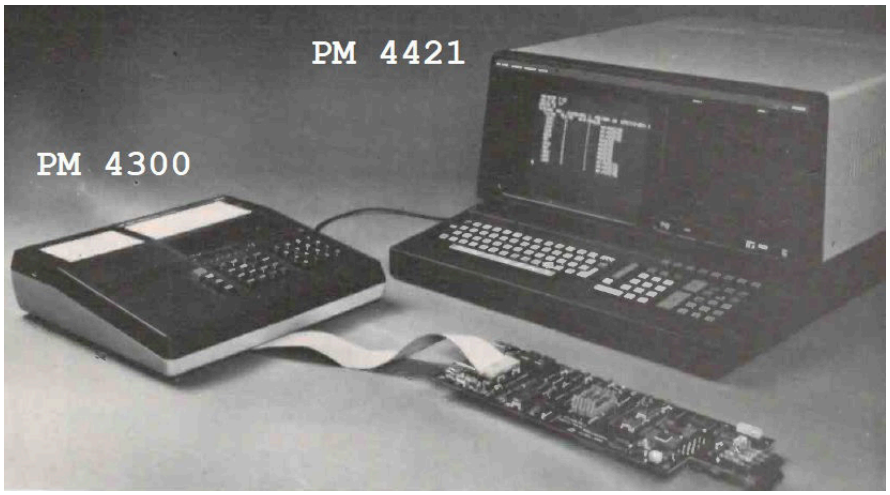


Fig.2 (google)

PMDS II (technical details)

C.P.U.: Motorola 68000 (ref. Electronics & Power, p.652, Oct.1982)
R.A.M.: 256 Kb (up to 1Mb)
Mass storage: 1 or 2 5.25" floppy disk drives,
1 Winchester HD of 5Mb or 21Mb
(expandable with other HD up to 147Mb)
O.S.: UNIX (Bell Laboratories version)

The PM4421 system is a single-user system
The PM4422 system is multi-user sysem (max 7 terminals).

Commodore PET 2001

by Leonardo Miliani

Today we return to explore the 1977 triad, that is, those 3 computers that came out in that year that ideally marked the birth of home computing. After having seen, in the last article, the TRS-80 of Radio Shack, we will get to know more closely a better known machine, both because it has had a good sales success also in Europe and because it has allowed its producer to strengthen its name in a disruptive way in the field of home computers: we are talking about the Commodore PET 2001.

The origins

Year 1975, the year of presentation of the MOS 6502, the 8-bit CPU developed by Chuck Peddle together with other former Motorola engineers at MOS Technology. The CPU sold well but its success drew the ire of Motorola, which sued MOS Technology because, in his opinion, its former employees had built the processor using technologies and knowledge acquired in Motorola. Allen-Bradley, the then owner of MOS Technology, put the company up for sale before the lawsuit, which was taken over by his own employees; later he agreed with Motorola, paying the licenses due in order to continue selling the 6502. In 1976 released a microcomputer intended for developers interested in adopting the 6502, the KIM-1 (fig. 1). Surprisingly, the KIM-1 was not only purchased by professionals, but also by many computer enthusiasts who built their own systems around that small card.

At the same time Commodore was looking for an integrated manufacturer. Commodore was a manufacturer of electronic calculators that had had good commercial success in the early 1970s. However, Commodore's dominance was undermined by several competitors, first of all Texas Instruments, which decided to no longer limit itself to supplying the components to calculator manufacturers but to build them themselves, managing to sell them at a very competitive price because it produced all the necessary components. Commodore therefore decided in 1976 to buy MOS Technology, thanks to the fame it had achieved with the 6502. When Jack Tramiel, Commodore's boss, met the employees of MOS Technology, he also met Chuck Peddle, and was impressed by his vision of the future of consumer electronics: Peddle explained to Tramiel that the time of calculators had passed and that the new market in which to jump was that of personal computers. Peddle also showed the KIM-1, told him how it was purchased by hobbyists and explained to Tramiel that that microcomputer could become the basis for a much more advanced system.

Tramiel was convinced of the feasibility of the project and gave his permission to carry it out but forced Peddle to develop this system in a short time because he wanted to present it at the Winter Consumer Electronics Show in Chicago, which would be held in early 1977, leaving Peddle only a few months of time. Despite this, Peddle did not lose heart and started designing the computer, adding what was missing from the KIM-1 to become a complete computer but also easy to use by anyone.

The timing was respected and Commodore was able to present a prototype of the new machine at the fair. The chassis was made of wood, characterized by rounded lines and designed by Ira Velinsky who in the future would

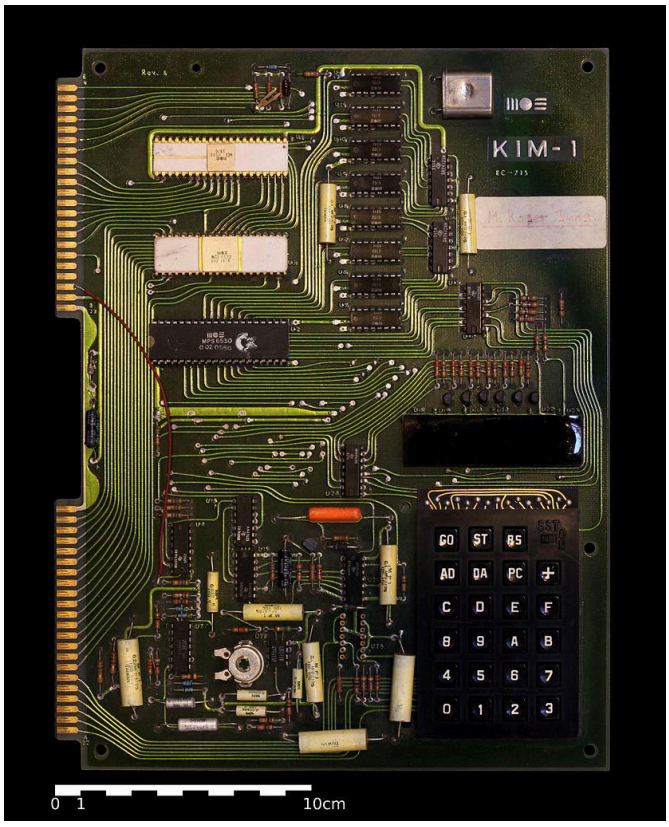


Fig. 1: the MOS KIM-1 (author: Rama - source: Wikimedia Commons)

Fig. 2 - The first prototype of the PET (source: Commodore.ca)

be appreciated for the design of other computers; the monitor was a monochrome cathode-ray tube extracted from a common TV that had been purchased by the designers themselves; as a mass memory there was an integrated cassette recorder; to complete the machine, a small keyboard with rubber keys (fig. 2). Commodore PET was born.

After that first taste, the PET was revised in some of its elements, first of all the chassis. Commodore also produced metal office files so, when it was time to finalise the design of the computer, in order to contain costs it was decided to abandon the rounded lines in favour of a new chassis with a square profile, more suitable for Commodore's plants where the sheets for its files were printed. The new profile was the work of Peddle in collaboration with designer Larry Hittle: in addition to the more square body, a trapezoidal-shaped monitor container was made, ideally resting on the computer. This solution became so famous that it was eventually representative of the computer itself. The computer was equipped with 4 KB of RAM (expandable), the aforementioned white phosphor monitor, a keyboard with a separate numeric keypad and, as mass memory, a cassette recorder next to the keyboard. Built into the computer was Microsoft's unmissable BASIC interpreter, which served not only as an on-screen editor for inserting programs but also as a command line for entering direct commands. The computer thus revised was reintroduced, again as a prototype, at the West Coast Computer Faire held in San Francisco in April 1977 (fig. 3). Interestingly, the chassis was designed with a car bonnet opening, with a rod to support the upper part (fig. 4): this was also due to the considerable weight to be supported represented by the metal container and the screen.

The selling price of the model with 4 KB of RAM was set at 495 dollars and the computer was initially only available by mail order. However, the waiting times could be calculated in the order of weeks because, due to the processing of the metal chassis, the Commodore plants could not produce more than 30 machines per day. Given the large number of orders, Tramiel decided to increase the price when the computer was officially presented at the Summer Consumer Electronic Show, which was held in Chicago in June: the model with 4 KB was brought to 595 dollars while the version with 8 KB of RAM was priced at 795 dollars. To facilitate the purchase of the version with more RAM. Commodore began to push commercially only the latter, also making it clear that the computer with less RAM had longer delivery times: certainly not a commendable promotion system... Along with these models were also announced those with 16 and 32 KB of RAM.

The technical characteristics

The Commodore PET derives from the KIM-1, thus sharing

Fig. 3 - The Commodore PET 2001 first version (photo: Rama - source: Wikimedia Commons)

Fig. 4 - The "car hood" opening of the PET (photo: Marcin Wichary - source: Wikimedia Commons)

the MOS 6502 CPU with the latter, which was subsequently chosen for many other home computers. RAM is, as already mentioned, optional between 4-8-16-32 KB and always resides in the lower part of the CPU addressing space. At the top is the ROM with the operating system, consisting of: the KERNAL, that is the routines of access to the hardware of the machine; the character set; a version of Microsoft BASIC adapted to this machine and called Commodore BASIC. Also with a view to saving money, the cassette unit is not designed by Commodore but is a common tape recorder modified to be housed inside a slot specially made in pet. The integrated white phosphor monitor is 9": it seems to rest on the computer but is actually fixed with the bottom forming a single machine block. The video management is not done by any dedicated chip but by a circuit based on TTL logic that can only display a text screen of 40x25 characters. The character set is called PETSCII (from the combination of PET with ASCII, the character encoding used). Leonard, Tramiel's eldest son, also contributed to the design of the set. The

Fig. 5 - The small keyboard with rubber keys of the early PETs (photo: Soupmeister - source: Wikimedia Commons)

PET is not able to manage any type of raster graphics nor is it possible to modify the characters, since these are addressed directly by the ROM. To overcome this limitation, the PETSCII was designed by including two complete sets of 256 interchangeable characters: the first 128 characters of the two sets are a combination of uppercase letters and semi-graphical characters (such as lines, arcs, dots, segments, etc.) and lowercase/uppercase letters, respectively, while in both sets the second portion of 128 characters is composed of the inverted versions of the first.

Thanks to the semi-graphic characters, the programmers were still able to make games of a certain detail such as Space Invaders and Defender clones, as well as card and chess games. Subsequently, the PET has some connection ports: a parallel port, a "user port" connected to one of the VIA chips, an IEEE-488 port and a second connector for cassette recorders. It does not have any audio management (it is a "silent" computer), even if over time devices with small "buzzers" have been made, to be connected to the user port and to be driven directly from the VIA. The small keyboard has a main section with the keys arranged according to the QWERTY scheme and a small numeric keypad on the right side. To the left of the keyboard is the tape drive for saving/loading programs.

Subsequent Models

Despite its shortcomings, PET becomes an immediate commercial success. In fact, it is one of the first all-in-one computers to appear on the market, a few months before the other two computers of the so-called "1977 triad", namely the TRS-80 and the Apple II. It is certainly not the first ever because there are already other ready-to-use monobloc systems on the market, such as the Sphere 1 in 1975, but it is certainly the one that is enjoying the most success in that period. In fact, the orders flake and Tramiel, to increase the hype, increases delivery times, going so far as to ship the computers more than 6 weeks from the order. It also implements other policies to increase the demand for models with more RAM, such as not advertising the base model with 4 KB or drilling the RAM expansion plots on the motherboard on 8 KB models to prevent users from purchasing this version of the machine and then expanding it by purchasing the chips later. Those who want more memory must therefore buy the already expanded model or change the machine.

Major complaints focus on the keyboard. The problem is the size of the keys, which are really small and "rubbery", not only because of the material used but also because of the sensation they give to the operator while typing, often forcing to check on the screen whether the press of the key has been detected by the system or not (fig. 5). Even the tape player does not shine for quality, since it is a common music recorder, and for speed: although it can reach a theoretical speed of about 1,500 baud per second, Commodore adopts an anti-error technique for saving based on 2 consecutive data writes, thus halving the actual read/write speed. To remedy these defects, the computer was updated in 1979: the rubber keyboard was replaced by a traditional one with mechanical plastic keys while the integrated recorder was eliminated to make room for it and replaced with an external unit (the "Datassette"). A new 12" screen is also offered as an option. In addition to these more visible changes, internally the new machine comes with a new version of the Commodore BASIC, which solves the many bugs of the original interpreter.

In the same year the computer was presented in Europe under the name of CBM (from "Commodore Business Machine") because the acronym PET has already been registered by the Dutch Philips for its own computer called "Programm-Entwicklungs-Terminal".

The following year the computer line was updated again and resubmitted as PET 4000/CBM 8000. Basically it is the same machine but with a new BASIC that integrates the dos commands for disk management. The CBM 8000 line is identical to the PET 4000 but, together with the standard 12"monitor, adopts the MOS 6545 video chip thanks to which it can offer 80 text columns, in high demand in the professional field.

A particular model is the SuperPET SP9000. Developed by the University of Waterloo in Canada, it is based on the CBM 8000 series but features a second processor that flanks the classic 6502, the Motorola 6809, thanks to which it can run all professional programs written for this CPU, including compilers for C, PASCAL, BASIC, Fortran, COBOL and other languages. In fact, it was created as a machine for university students and scientists and many languages and development tools are not yet available for the 6502.
The PET/CBM computer series remained on the market until 1982, when it was replaced by the MOS 6509-based CBM-II machine line, a 6502 derivative capable of addressing up to 1 MB of RAM. In fact, with the release of the VIC-20 many home users have already begun to switch to the new computer because of the possibility of having at a very advantageous price what the PET can not offer, i.e. color graphics and sound.

Conclusions

Despite the technical characteristics that would make us smile today (especially the RAM of only 4 KB) the PET 2001 was immediately a huge success, demonstrating that Peddle's vision was correct. The computer was purchased by amateurs not accustomed to the use of the welder: the PET was ready to use, it was not necessary to weld hundreds of electronic components as in the case of computers in kits nor to barge to connect keyboards and recycled monitors from who knows where.

Fig. 6 - A 2001 CMB with the new keyboard and 12" monitor (photo: Jeff Keyzer)

Just plug in the power. Precisely because of its ease of use and its ability to create small networks (up to 15 PET could be connected through the rear doors) it was purchased in large numbers by schools to supply computer classes. The subsequent availability of models with 80 columns of text made PET attractive also for professional uses, facilitated in this by the rich availability of software for every type of use.

Unfortunately, the success of the VIC-20 first and Commodore 64 later increasingly turned Commodore's interest towards the domestic market, leaving out the business, which was first relegated to the background and then slowly abandoned. Even the exit from the scene of the volcanic Jack Tramiel, which took place in that same year, certainly did not help the company, which began from there to make increasingly questionable choices. But this is another story.

Curiosity about pet

The name PET was officially the acronym of "Personal Electronic Transactor" but rumor has it that it was actually chosen because of the "PET rock", that is, the "domestic" rocks collected on the beach of Rosarito in Mexico and marketed in 1976 as "living stones", sold in a perforated box with a straw bottom, as is done with live animals. The creator of this stunt managed to sell more than a million pieces within a few months, making it a real mass phenomenon. Peddle, in an interview released in the 2000s, confirmed this theory, saying that the name "pet" had been chosen precisely to capitalize on the success of "PET rock" and sell people a "pet computer" (a "home computer").

Another curiosity about PET concerns the different references to the film "2001: A Space Odyssey" that the computer brings with it. Starting from the presence of the number "2001" in the name, which is not reflected in any of the technical characteristics of the machine. Continuing we find that aseptic white color predominant in Kubrick's film, which in the 60s and 70s was very "science fiction".

Fig. 7 - The effects of the "killer POKE", you can see the distortion on the image being compressed towards the center (photo: André Fachat - source: 6502.org)

The shape of the PET itself recalls that of the terminal with which one of the protagonists makes a video call. Not to mention the name: 3 letters, like that of HAL (9000), the super-intelligent computer that governs the spaceship that houses the protagonists (and like that of IBM...). And finally, the font used for the writings of the labels on the machine made with the same type of font used for all the writings present in Kubrick's fim film, the "Microgramma": created in the 50s, it was used very much in the printing and in the cinematography of the 60s and 70s because it was very "futuristic" and "science fiction".
Finally, mention should be made of the "killer POKE", that is, a POKE instruction that, according to the urban myth that was created behind it, could even "kill" the computer, damaging it on a hardware level. The infamous instruction was as follows: POKE 59458,62. In reality, she did not do what she was known for but, to understand what she was up to, we must first see how the PET was structured.

As mentioned, the first models of the computer generated the video signal using TTL logic: to update the video memory, the system waited for the electronic brush to finish drawing the image and reach the empty part under the text area.

This point was signaled to the system by changing the status of a pin of one of the 6522 chips VIA the computer. Some users, analyzing the electrical diagrams of the system, had noticed this way of managing video times and, through that POKE they manually changed the state of the pin thus deceiving the computer and making it believe that the video brush was always in the part without graphics to be drawn.

This implied an increase in the speed of video writing because the system accessed the video memory without waiting: this, however, was at the expense of video quality with the appearance of a "snow effect", where some pixels were turned on at random on the screen. In subsequent models, those equipped with the 6545 CTRT as a graphic chip, this POKE no longer had the effect described above because the hardware had changed but distorted the screen by compressing it on the vertical axis, thus suggesting that this distortion could lead to damage to the monitor caused by operating out of specifications (fig. 7).

In fact such behavior has never led to burned screens or computers that have ceased to function.

First look at EVERCADE VS - everything you need to know

by Carlo Nithaiah Del Mar Pirazzini

We would like to thank Blaze Entertainment ltd for the documentation they sent us.

The Evercade retro gaming system is growing with the announcement of Evercade VS, a new home gaming console from Blaze Entertainment.

After the successful launch of the Evercade portable gaming system in 2020 (reviewed in issue 29 ita and 07 uk), which has become the officially licensed option for many retro gaming players, Evercade VS builds on this by bringing the portable experience to multiple players and at home… just like the good old days!

Evoking nostalgia for the games of yesteryear with its only physical distribution of the game, Evercade VS takes a step forward in allowing people to play together.

The new console supports up to four players simultaneously via the proprietary Evercade VS USB controller provided in the package (or purchased separately for additional controllers).

The joypad follows the same comfort levels as many of us have praised Evercade portable, with ergonomically designed controllers that fit all retro games.

Evercade games already have multiplayer support, so the existing library with multiplayer functionality will be supported immediately.

The VS will also support numerous third-party USB and wireless controllers, including the Xbox Adaptive controller and 8bitdo wireless controllers.

The system offers packages of licensed games, curated and collectible through a cartridge with a stylish box and a manual. The cartridges are currently reproducible using the Evercade handheld console, launched in 2020.

With Evercade VS, Blaze continues to offer its customers an unparalleled gaming experience with a catalogue of classic titles and several independent titles of fine workmanship.

Using the same cartridge system as the laptop, the VS was born with an existing library of over 260 games on over 20 cartridges and with continuous support for new outgoing titles.

It will also support two cartridges at the same time. This will allow players to have up to 40 selectable games at any time depending on the number of titles on the cartridge. All of this will be displayed on the screen with a new and improved user interface with full visual capabilities including screen filters, sorting options, and resolution features that enable Pixel Perfect rendering.

Evercade VS will be played at 1080p, making it the compact gaming system with the highest resolution on the market and will be equipped with built-in WiFi for easy upgrades

and future online features.

The games themselves are all linked to the cartridges with a top-of-the-range emulation powered by Evercade VS 1.5GHz quad-core CPU and 512MB DRAM. All cartridges contain save and load states. This means that any progress on an Evercade laptop can be easily resumed on Evercade VS or vice versa. The save states will also have a new full visual area within the new user interface to show users exactly where they saved their games.

The price is also remarkable, starting at £89.99/ $ 99.99/ € 99.99, Evercade VS offers a great entry point for those who want to have an impressive library of official game collections.
The release of the console is scheduled for November 2021 with pre-order already activated from the official website.

Evercade VS Details

• HDMI output for TV with 1080p resolution and 5v power to use any USB power supply device
• Dual cartridge slots to allow multiple games to be selected at the same time
• Fully supports all existing Evercade cartridges. The cartridges (subject to license) are compatible with both the laptop and the console VS. Over 280 titles by the end of 2021
• Saves states on cartridges so that progress can be saved on both laptop and recorded on VS or vice versa
• New user interface
• New resolution options, including the Pixel Perfect option
• Built-in Wi-Fi to enable only the seamless user interface and game updates
• New controller with increased button selection (full set of bumper buttons) for games
• Supports non-Evercade controllers, including wireless adapters, adaptive controllers and other USB controllers
• The existing laptop can be used as an additional controller with a connection cable (sold separately)

Technical specifications

• 1.5 Ghz quad-core processor, 512 MB DRAM and 4 GB internal memory.
• 4 USB controller ports (up to four supported readers) with support for third-party controllers.
• HDMI output with 1080p resolution (cable not supplied)
• Updated user interface with resolution options (4:3, Pixel Perfect, Full Screen), Scan Line Filters, visual game library and visual save states.
• Built-in Wi-Fi for easy updates and future network-enabled features.
• Dual cartridge slots for expanded library
• 5V micro USB power supply (cable supplied, power adapter not included)

For more information you can consult Blaze's website: https://evercade.co.uk/

The A500 Mini - A compendium of pure happiness

by Giuseppe Rinella

Finally what has long been rumored is reality, Amiga 500 Mini has been officially announced.
Joy, joy and triumph!
The people responsible for this (mini) bomb are the guys from Retro Games, the same ones who brought out the C64 in 2018, initially also in the mini version, later in the "big" version, that is the biscuit in its glorious dimensions and original functionality.
Subsequently, the Vic 20 also came out, directly in full size version.
The C16, the first home computer of the undersigned, do we skip it that far?
A500 Mini is scheduled to be released on March 31, 2022, too bad I can't have her for Christmas.
It will have 25 games pre-installed, of which at the moment only 12 have been announced and are: Alien Breed 3D, Another World, The Chaos Engine, Worms: The Director's Cut, Cadaver, Kick Off 2, Battle Chess, Atr, Pinball Dreams, Simon the Sorcerer, Speedball 2 and Zool.
There will still be the possibility to charge other games (OCS, ECS and AGA) via USB port.
It is not yet known how much hard disk space we will have available, but considering the (not) weight of the games, it will not take much to load all the titles we prefer.

The keyboard, as was the case for the first version of the C64, is not working but there will be the possibility to connect one via USB port.
And again: ability to save the game at any time, HDMI port, graphics filters to reproduce the cathode-ray tube effect. In short, all those features that mini consoles have now gotten us used to.
In addition to the mini Amiga we will have a mouse, that yes, reproduced in its real size, and a joypad.
Since there was never an official joypad/joystick for the Amiga 500, it was chosen to include the CD32.
All this for the price of 129 euros.

Since the official announcement and for several days, nothing else has been said in the various groups of retrogames, of faithful devoted to Mother Commodore, in the forums and probably also in bars and supermarkets, queued at the checkout.
You can read any type of comment, from the hyper-

enthusiastic to the ultra-critical.
Could I, as a total worshiper of all that is Amiga, not express my fundamental opinion? Of course you don't.

According to the large population of retrogamers, there are a number of positive and negative aspects in this operation, for the avoidance of doubt I come out immediately: personally I think that the negative ones are not many and not even that huge.

The first is the price, 129 Euros is a lot, it is true, especially if we consider the cost of the other mini consoles released sofar.
Except for the Neo Geo which is a bit of a case apart, being a real mini cabin. We also know that Neo Geo, by definition, has to cost more than anyone else.
To give some examples: the mini Nes cost 60 Euro, the Snes 80 Euro, the mini C64 "only" 50 Euro.
For A500 Mini it was hoped for something similar, perhaps tending to the 80 Euros of the SNES or so. And not wrongly, I add.
To overcome this problem you can arm yourself with patience (I don't know about you, but in my vocabulary I haven't found this word) and wait for any offers online or elsewhere.

Another element that was not received very well, the size speech and keyboard.
Many ask loudly for the working keyboard and the real size. This choice has already been explained by Retro Games in a post published a few days after the announcement, and is due to purely economic reasons.
This project did not start from Kickstarter or another crowdfunding platform, thanks to which once the necessary figure is reached, production begins, thus having capital and future customers insured, therefore at practically zero risk.

In addition, two numbers regarding the sales of the C64 are enough to give a further explanation, always provided by Retro Games: the "life size" version came out after the more than satisfactory sales of the mini version, but the total units sold, of both versions therefore, say 20% full size units and 80% mini units.
Let's add the fact that Retro Games is not a giant like Nintendo, Sega or SNK, which means more limited resources and much higher risk.
So the ultimate answer is, let's see how it goes.
In addition to all this, there is an aspect that I think is not insignificant, namely the original size of the Amiga keyboard, which is quite important.

For those lucky enough to have a room specially dedicated to their toys, there is no problem and indeed, in that case having the exact reproduction of an A500 in all its majesty, makes its beautiful effect.
For everyone else, however (here it is), finding a space suitable for that keyboard poo is not at all trivial, in short it is not exactly like making space for a Snes, to say one.
Not to be overlooked then the price aspect, if the mini version will be sold at 129 Euro, the full size version risks being really too expensive and dangerously unattractive.

Another much criticized aspect is the choice of pre-loaded titles.
I say this very frankly, it's an objection I really don't understand.
As mentioned, there will be 25 games, of which only 12 are official, so 13 are missing and jumping to conclusions is therefore at least premature.
But I add two considerations: the first, 25 games compared to all the titles released for Amiga are inevitably few and, equally inevitably, anyone will have to deny the selection. Ask 100 people for the list of the best 25 Amiga games and you will have 100 different lists, and it is right that it is so. Fully satisfying everyone is impossible.

The second, A500 Mini will have a brilliant USB port through which to charge whatever you want. Possibility that also exists for other mini consoles, but in those cases you have to handcuff yourself a little, read guides, watch tutorials. In some cases it is necessary to arm yourself with a screwdriver and operate.
Here instead are the producers who are telling us "Go and load what you want!".
In my opinion, gaming is not a problem.

I have also read other objections, in my opinion a bit harsh and pure.
For example, I happened to read that, since it is a reproduction of an Amiga 500, it should not support AGA games. Yes, you can, but I see this A500 Mini as a celebration of the whole Amiga world, at least up to 16 bits, so the AGA games are welcome.

I have also read some doubts about the choice of the joypad, not of a "pure" Amiga 500 but of the CD32, but in this case the choice seems quite obligatory, wanting to only propose Commodore products again.
Another objection, which concerns mini consoles in general, is that games should only be played on real hardware, otherwise nothing.
All right, having a real Amiga 500 is great, just like any

other original hardware. But with the current prices for a working and dignified Amiga, you buy a PS5 and get something for a future PS6.
So I think it is also an excellent invitation for the new generations, who can deepen retrogaming by spending relatively small amounts.

Finally, a criticism read several times, which also concerns a little here all the mini consoles, that is, the one according to which similar operations are only commercial and for old nostalgic.
Nostalgic old men, let us join together and say it loudly: it is exactly so!
And I add, give me more! When's a mini Dreamcast? What about a mini Gamecube? A reissue of the Gameboy?
We are fully aware of how much this relies on our memories of youth, indeed we are almost flattered by so much attention. To be honest, we've been waiting for a mini Amiga 500 ever since the first mini console came out, the delicious mini NES.

Be clear, they are all free and very respectable opinions and we would miss them, we are still talking about something far from fundamental, it is always good to remember(if)it.
Speaking of the merits instead.

Let's face it, judging by the images that circulate, it's beautiful.
He could easily rival all the pictures of kittens on the Internet he knows, and a cat lover says so.
It takes up very little space, with that size you can take it anywhere you want.
Maybe not at the restaurant, but on vacation why not?
And then, attack two cables and games, ideal for those who want to retrace the good old days, without having to handcuff too much.
And again, you charge everything you want (or at least a good part), save the games at all times, which on Amiga, in many cases, is a far from trivial aspect.
For those like me who lack space, how much joy can the vision of a Amiga 500 puppy, always there next to the television, give me? So much.
At every glance there will be a nostalgic sigh and a vaguely stupid smile.

In conclusion, buy it on day one? Buy it later? - Never?
Obviously the choice is yours, I think mine is clear.
Seeing the price, I thought, almost instinctively, that I would buy it when it would fall a little, maybe after a few months.
But I managed to stay serious for five or six seconds at most.
The truth is, as soon as it's available in pre-order, I'll be there in the front row.
We will meet here again for a long and in-depth review, little but sure.

What about you? Will you buy it now or immediately?
Greetings to you all and AMIGA FOREVER!

MAXIM, the arcade room 1990 - Part 1

by Mic the Biker

Hello to all fond readers of Retromagazine, here Mic the Biker who greets you. I begin this article with a proper preface: retrogaming has exploded. As a niche phenomenon, within a few years the return to old systems and the rediscovery of forgotten video games is increasingly present in the vast world of gaming. We have seriously risked losing an immense artistic heritage and seeing a large part of the history of our country erased, that history made up of smoky arcade gaming venues and pioneering domestic systems. Now that everything is coming back, thanks in no small part to emulation and dumping, we see that those fantastic rooms full of booths are emerging again, which can be given the full name of the "Games Room". It is fresh news that in June 2021, in Carpi, a real games room opened, which, on the overwhelming wave of the return, intends to propose "only original vintage pieces" from the 70s to the 90s. The words of those who had this idea are praiseworthy: "Our purpose is to transmit the memory of what were the game rooms of the 80s, passing on their memory even to generations who have not experienced them".

All this can certainly do good to a world like that of video games, because you know well that for the undersigned preservation, sharing and passing on are three pillars on which this great passion is based. And here, with this article, I wanted to introduce you to a person who had a dream, realized it and never stopped cradling it. His name is Massimo and he owns a games room in Jesolo Lido. He did not take advantage of the good time to go out and propose the old glories of the past, he has always been there even when the arcades were now forgotten places, supplanted by the next Gen console on duty. I had the idea this summer, on vacation, to interview Massimo, the owner of the games room Maxim of Jesolo Lido, the last and only one left standing from the golden age. A really curious and pleasant chat, thanks to which I had the pleasure of meeting someone who has always carried his passion and who has never given up.

Let's start from the beginning: in what year did Maxim's arcade open?
The Maxim arcade opens in March 1990.

Tell us, who had this idea?
It all started in the late 60s when my father Placido had a small room located in Jesolo Pineta. There was a track for battery-powered cars, a five-a-side soccer, a pinball machine, a micro-guide and some rockers.
To be precise, an elephant and a seahorse, the latter symbol of Jesolo for many years. Then some electromechanical play of the time was added.

At the end of the 70s, with the advent of the first video games with black and white monitors, the need to enlarge it. In the 1980s he decided to use the adjacent space of an apartment he rented to expand the business. In March 1990 the decision to open Maxim in the central area of Lido di Jesolo for a longer season.

Tell us a little bit about yourself.
I was born in 1971. From the age of 8 I spent the summer seasons in that small room, changing the 100/200 lire coins from my beige cloth purse to the customers. Then, as I grew older, at the age of 14, I took care of the complete management of the room. I went from cleaning to game maintenance, observing and learning from the technicians who came to the service. When I was 18 years old, I took her to Maxim. I have always been passionate about music and images, and everything that was beautiful was built from the 50s to the 80s. It is no coincidence that at Maxim you can find and admire antique objects, including radios, toys, bicycles, cars, etc.

How did the name Maxim come about?
Maxim, by my name Massimo.

Which cabinets do you remember most fondly?
Among the 1978 Ultra Laser cabins, an Italian copy of

ABM Milano, the most famous Space Invaders. To name a few Friends and Nibblers from '82, Pacman from'80, Scrambler from '81, Phoenix from'80, Gallagan and Donkey Kong from '81, and many others from thatage.
With the advent of Dragon's Lair and Space Ace in 1983.

What about your favorite arcade video game?
Space Ace, Cinematronix, designed by Don Bluth in 1984.

Give us a personal ranking of the most played cabins, the ones that when you opened the door you had the box full of tokens.
In the 1980s there were several including Space Invaders, Phoenix, Nibbler, Donkey Kong, Super Sprint, Pacman and various laser games. In the 90s the most significant: Daytona USA, Street Fighter, Mortal Kombat.

The arcades attracted people of all kinds. Have you ever had a problem?
By maintaining a correct dose of patience, kindness and listening, many situations of discomfort have been resolved positively.

Can you tell us how you lived the "golden age" of the arcade world, from the mid 80s to the next 10 years?
I lived that period to the full, being able to see and know 90% of the games that came out in that decade. I remember being impressed by the first laser game, Dragon's Lair, which was at Jesol Matic. An epochal change from classic arcade to laser games, although the latter did not have a great continuity due to the repetitiveness of the game and the problems related to technology too sensitive to mass use. Laser technology was applied not only in this field but in many others marking a real era.

I saw that you also have a "multi arcade" station to be able to play the old titles. What system is it based on?
Many customers asked me for titles from the 80/90s so in those two booths I inserted pandora cards, containing 1000/1500 games of the time.

A question I've always asked myself. On the right the Dragon games room, on the left the Jesol Matic, bowling-mini-games room with billiard tables in Piazza Marconi. How was the coexistence with these two giants of entertainment?
Stimulating. Quite a lot. We were in the middle of two giants in the arcades, the Jesol Matic and the Dragon. We

arrived with great humility, trying to carry out our work at its best, day after day, always looking to the future but with the experience of the past.

Today our greatest achievement is to see the joy in the eyes of children in having fun together with their parents or grandparents. Right there we understand that what we are doing we are trying to do in the best possible way. For us the games room is a healthy place of fun open to several generations.

These two massive arcades haven't been around in years. Maxim's still here. How many sacrifices did you have to make to survive the change?
Keeping up with the times, following market needs. Surely family management was our winning weapon.

Nowadays the arcades look more like mini-casinos, with almost all games based on "Ticket redemption". I buy tokens, when I play I get tickets that will entitle me to a prize. On several fronts this system is accused of directing children to gambling. The next step, growing up, is likely to be the slot room. What do you think about that?
This connection is one of the biggest mistakes you can think of. There is no place where the whole family, from the smallest to the largest, can have fun together with a minimum expense.

There are no social distinctions. It is nice to see children, even very young, coming in the arms of their parents, who smile in front of the lights, sounds, colors of this world. The gaming halls, or more modernly called F.E.C "Family Entertainment Center", have nothing to do with gambling. The two things are completely at odds: the arcades are open places where everyone has fun together and becomes a bit of a child.

You are the only game room of the old guard left in Jesolo that has survived to this day. Is there still someone who, apart from myself, comes in and compliments you?
Fortunately many, and this fills our hearts every day. Who lives in memory reviewing games of the years 60-70-80-90-2000 and the latest news, and also the compliments for the vintage objects that can be admired by those who do not play. Over the years we have seen many families whose children, who then frequented the arcade, have become parents and in turn take their children to play.

It is universally known (or at least thought) that the cause of death of the arcades is attributable to the advent of the first playstation in the living rooms of the house. Do you agree or was the game room world already in decline?
When it comes to technology, it's always evolving. The world of the arcade has also followed changes and innovations over the years, becoming what it is today. In the 80s, those who frequented them were teenagers, today it is open to all generations, from grandchildren to grandparents, reaching the completion of the ultimate social purpose: fun for everyone.

You're on a deserted island. What musical CD would you definitely have with you? Only one.
Carboni by Luca Carboni, 1992 (italian rock singer, ndN).

And the coin op you'd hope to find on this deserted island? Just one.
Space Ace.

We have reached the end of this beautiful interview: a heartfelt thanks to Massimo for giving us some of his time. If you pass through Jesolo Lido, go to Maxim, in Via Bafile 48.

It contains valuable machinery that is history. Precisely for this reason, in the next issue we will continue our journey in the Maxim games room to discover the wonders that lies within!

Interview with the creators of Demons of Asteborg

by Carlo Nithaiah Del Mar Pirazzini

For some time we have been seeing high quality indie/ homebrew games coming on Mega Drive, both in gameplay and design.

Demons of Asteborg as we have seen is one of these (find the review in this same issue, NdFF).
A project born in 2013 and that has achieved a really amazing result.

I had the opportunity to ask 5 questions to the two project managers Simon and Christopher of Neofid and talk about this incredible product!

Nith: "Ghouls'n Ghost", "Castlevania" and "Demon's Crest" are 3 magnificent references that I quote for the creation of Asteborg. Does developing today on Mega Drive give you the advantage of all the "tips" of the past, all the optimizations acquired on the support over time?
Simon: In fact, our inspirations come from great historical games, which necessarily involve a form of pressure in the development of a product that is inspired by it, but I think this is positive, it pushes us to give the best of ourselves to create a game that satisfies our ambitions and our inspirations.
The Megadrive is the console of an illusionist, there are a lot of suggestions to create amazing visual effects for the time and still effective today, so we learned how those effects work and we had a great time playing them in Demons of Asteborg (The youtube channel "Coding Secrets" has helped us a lot)

Nith: Since we are talking about evolution, between 2019 and 2021, the writing of the game is very different! Why is that?
Christopher: It's very different and not for nothing. In fact, in 2019 we presented a prototype on Kickstarter, made with vehicles in hand and as fast as possible. We had to come up with a good product with everything that was available for development on the market and that would help us get financing.
Once we reached the funding we could really have fun and use artists that we liked and that corresponded much more to our style goal.

Nith: Although more and more games are being created on old systems, their online funding is often a failure.

Your first kickstarter just brought you back... 138 €. How you approached this first “failure”. You, indeed, had to put money into it out of your own pocket. How do you feel, when today, when the project is over, we find that the feedback from the players is mostly very positive?

Simon: A project like "Demons of Asteborg" is a personal investment of several years, we wanted to finish it at all costs, the problems encountered sometimes are also an opportunity to improve our creation process, we find the strength to continue and the support of the players.

It is very gratifying to see that the feedback is mostly positive. It's great when you work so hard on a project, when you see everything you've been through so far and finally get the reaction from the audience! Afterwards, there will always be people who will not like this or that thing, or people who will definitely hate it. But it's all part of the game.

Nith: “Demons of Asteborg” could be included in the ranking among the rather difficult games. An anomaly compared to modern times.
Why this choice? How did you manage to balance this difficulty in the creation phase?

Simon: The dosage of the difficulty is something very complicated, the whole team has been playing for more than two years now, and obviously we know the bosses' patterns, we are used to the gameplay and the combat system, so when we add a new enemy or boss, we try to reach a difficulty quite equivalent to that already present in the rest of the game, but it is easy to forget that we know the game by heart and that therefore our difficulty scale is unbalanced compared to a beginner player. Fortunately, we managed to balance many things during the testing phases. The game remains challenging, but also fulfilling, once fully mastered, it is easy to complete the adventure in less than two hours.

Nith: How important was the release of this game for you? Are you going to stay in the same universe for the future? Same kind of game? The same platform?

Simon: The release of the cartridge was essential for us! It is also our vision of retrogaming, to think that "Demons of Asteborg" will have its place on the shelves of some Megadrive fans, it is priceless. As for the cartridge, it's really perfect! We wanted to create a great adventure, with landscapes and varied situations and I think we have reached our goal!

For the rest, nothing is yet definitive, we would like to expand the universe of Asteborg and we already have some ideas for new protagonists, there may also be clues in "Demons of Asteborg", but so far no one seems to have found yet.

Thank you for taking the time to answer our questions. I'm going back to play ;)

MSX BASIC the "ghost" commands... part one

(i.e. how to redefine graphic characters in MSX Basic)

by Ermanno Betori & Parsec 99

Today we present the first of a series of articles where we will explain a series of instructions from the Basic of MSX computers to achieve the management of the graphics, taking the cue from the commands used on the TI99/4A computer having the same graphic chip but with a different approach in the implementation of these instructions through the Basic language.

Let's assume that the two computers (TI99 & MSX1) were created about 6-7 years apart, so in theory the computer created later should have the basic instruction set improved and simplified. This should be an absolute truth, but it is not always real, in fact a careful retro-programmer sees that in the basic language on MSX1 computers some functions/instructions related to graphics have been omitted and enhanced in other fields.

Let's start from the very beginning. The graphics chip present on both computers is the TMS 9918A/29A (NTSC/pal) with its own dedicated 16 Kbyte video RAM independent from the one used by the computer CPU, which will determine a choice in defining the basic commands on the TI99/4A computer of Texas Instruments.

At the time of the TI99 project (1977) ram memories were very expensive and to contain the costs the designers used the ram of the video-processor as a system ram instead of the one dedicated to the CPU, therefore the TI99/4A without any expansion was sold with a video ram of 16 Kbyte and with a ram dedicated to the 256-byte CPU (it is not a mistake it is really 256 bytes).

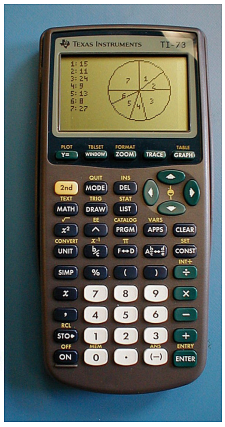
The MSX1 systems that were later sold in the following years (1983/84), started with a 16Kbyte video ram and a ram memory dedicated to the microprocessor that ranged from a minimum of 8 Kbyte (as seen with the Casio PV-7 which was one of the first models produced).

Below in the figure instead we have the Philips VG-8020 which represents the top technical characteristics of the MSX1 models having the possibility of the double cartridge and the 64 Kbyte ram.

As a historical note, above in the photo we read on the body that the VG-8020 HAS 80K of ram this was a commercial crap (due also to technical ignorance) as it can be considered true only if we add the ram of the 64K CPU to the 16K of the VDP that are not absolutely sum. Again as a historical background it should be remembered that Microsoft in the 70s-80s was the company that created the majority of the porting of the Basic language on the various home computers (as they were defined at the time), but there were exceptions including the Texas Instruments that created its basic version. This version called TI Basic was used not only on TI99/4A but also on mini computers of the TI-990 series and subsequently on calculators programmable from TI-73 to TI-89.

What was special about this version of basic used on the TI99? Or better to say what was missing on this Basic... Since it had to exploit the video ram as a system ram, it was not equipped with graphic commands in high resolution such as circle, draw etc.. it was not equipped with the use

TI-990



TI-73

of sprites (which was then compensated with an Extended Basic cartridge that partially expanded the features), it did not have access to the high resolution graphics, and it could not use the whole set of characters (256). And it didn't have the ability to switch screens in the 4 graphical modes that VDP allowed, but the basic programmer could only use the 32-column x 24-colour 16-line mode.

This mode on MSX manuals is called SCREEN 1. In fact, this basic was very limited, so how could the poor user interact with the graphics? How could he draw, create games etc.? The idea was to allow the graphic redefinition of the characters of the ASCII table present in the video chip using a series of direct basic commands such as call char that redefines the character and call hchar/ vchar that displays the character repeated horizontally or vertically according to a pattern of abscissae and ordinates. Therefore, using this system it was possible to allow the TI-basic of TI99 to create graphic programs or games, managing to compensate for its gaps in graphic commands.

The MSX Basic, on the other hand, was among the most advanced versions available on the various home-computers for this programming language. In fact, it is full of functions dedicated to the management of variables, matrices, text and especially graphics and sound, such as direct commands for the use of SPRITES and commands for the creation of high resolution images such as DRAW, PSET, LINE, CIRCLE, etc... that allow an advanced use, but on the other hand put a strain on the performance of the computer. In the Basic MSX, as already mentioned, some commands were omitted, in fact no direct command was implemented for the redefinition / management of characters (perhaps it was considered an old programming method but very useful if wisely used), and the absence of these instructions is clearly visible reading any Basic manual dedicated to MSX systems. So for example to carry out the porting of a game, even simple, written with the Basic of TI99/4A, how can you proceed? The solution is not particularly simple, as you need a basic knowledge of how RAM VIDEO is organized and how the VDP works, which is acquired by reading the MSX manuals related to programming in machine language or assembler! Now for you new retro-gamer and hopefully retro programmer, we will try to explain the basics and instructions needed to manage and manipulate the graphics fonts so that you can use the graphics of the VDP TMS9918/29 in depth.
Let's start with the first-generation MSX, whose VDP offers several video modes, 16 colors and 32 hardware sprites:

The Video Modes
SCREEN 0: Alphanumeric mode 1 – "MA1" – (Text I) 40 columns on 24 rows in 2 colors
SCREEN 1: Alphanumeric mode 2 – "MA2" – (Text II) 32 columns on 24 rows in 16 colors
SCREEN 2: Graphic mode 1 – "MG1" – (Graphics) 256 x192 pixels on 3 sets of 256 characters for a total of 768 to 16 colors taken from the color table, also called Bitmapped.
SCREEN 3: Graphic mode 2 – "MG2" – (Multicolor) 64x48 squares of color each of which is formed by a 4x4 block of pixels that can independently have one of the 16 colors available.

The basic SCREEN command 'x' (non-existent on TI99), is precisely what activates the various video modes on MSX 1 which as we have seen are two text, a graphic and a multicolor, while on MSX2 systems the configurable modes are two textual and 8 graphics.
The characteristic of the MSX video architecture is to be equipped with a RAM dedicated to the screen, called Video-RAM, which is a memory external to the system, with a map that changes depending on the video modes set, on which the VDP reads and writes data.
On MSX1 systems, the 16 Kbyte Video-RAM is divided into tables that can be addressed directly from the Basic, but that change the pointers when the video mode is changed.

The main accessible tables are defined as follows:
TEMPLATE TABLE - (Character Set – defines character drawing)
NAMES TABLE - (Display array – defines character position)
SPRITE PATTERN TABLE - (Sprite Character Set – defines sprite design)
SPRITE ATTRIBUTE TABLE - (Screen – defines position on sprite screen)
COLOUR TABLE - (Colour Set not used in multicolour &

text mode)

Leaving aside the management of sprites for now, it is better to understand exactly what these tables are.
The MODEL TABLE, which is the actual character set, is the table that needs to be modified to redraw or redefine the characters that are displayed on the screen.
The NAMING TABLE can be confusing because of its nomenclature, but it is actually the matrix on which to place the characters on the screen, such as an invisible naval battle-like grid composed of cells where you can place the various characters individually.

Below in figure one we show the set of characters present in the system ROM that when the computer is turned on is stored in the model table of the Video-RAM. They are the famous 256 characters of the ASCII code (acronym for American Standard Code for Information Interchange) which are all redefinable unlike the TI99 whose basic only allowed the redefinition from the number 32 to 159 for a total of 127 characters
The characters shown in Fig.1 are present in the model table in both SCREEN 0 and SCREEN 1 mode, while in the graphic mode "MG1", i.e. SCREEN 2, the VDP completely resets the model table, so everything must be redefined.

Fig. 1 - The complete set of 256 MSX characters

Character identification takes place through a 16x16 position reference table with hexadecimal encoding, such as the following:
Fig. 2 is fundamental for the programmer when he needs to identify which character to place on the screen or redefine, so for example, wanting to identify the "L", just go to line "4" and column "C", obtaining the hexadecimal code "4C".

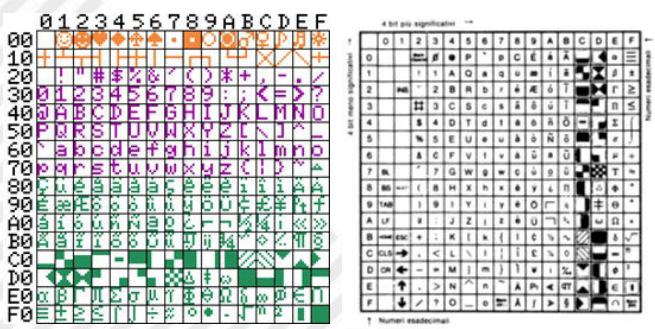


Fig.2 - Character set identification table

Therefore, the character "L" is identified in the model table with the hexadecimal value "4C" (Attention, two equivalent tables have been reported, the one on the left was created to have a better display and the 0 placed to the right of the hexadecimal encoding of the rows should not be taken into account, example 40=4, D0=D). Now that it is clear how to identify a character, the problem of placing it on the screen remains and here comes the name table. We have said that this table divides the screen into an invisible grid and a number of cells that differs between the "MA1" and "MA2".

The following image gives an idea of what is exposed about it and how the screen is divided during SCREEN 0, or "MA1": 40 columns on 24 rows.

In this video configuration, if we wanted to place any character on the screen, we would use the basic LOCATE [column],[line] command followed by the PRINT command.

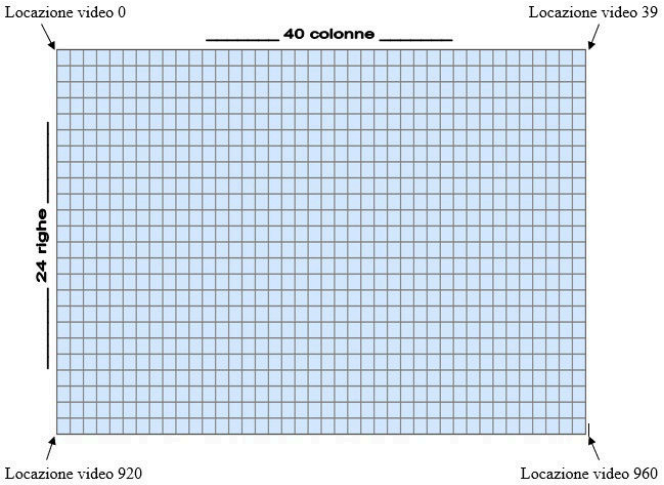


Fig. 3 - NAMES TABLE in the "MA1" mode

In practice, if we wanted to display the "A" character corresponding to the position calculated by the intersection of column 20 with row 10, we would simply write these two LOCATE 19.9 commands directly: PRINT "A", or for a better display the following list.

```
MSX                    TI99/4A
10 CLS                 10 CALL CLEAR
20 LOCATE 19.9         20 CALL HCHAR(10.20.65)
30 PRINT "A"           30 GOTO 30
40 GOTO 40
```

With these instructions, the capital letter "A" is printed on the screen at the intersection of column 20 with row 10. Note that the values entered are not 20 and 10 but 19 and 9 respectively, this is because obviously it is considered a scale of values that also includes zero as the first (as opposed to TI99 starting from 1).
It is therefore absolutely necessary to remember two

important things... the values start from the number zero not one and the columns set when the computer is turned on are 37, so the last visible column is number 36 (alias 37 real column) and if we want to use the invisible columns 37, 38 or 39, the "A" will still be positioned at the last available column. To bring the screen to display all 40 columns, Microsoft Basic, and therefore also MSX Basic, use the WIDTH [x] command (which also does not exist on TI99), with a value ranging from 1 to 40.

Fig. 4 – The 37 columns set at computer startup in "MA1".

Fig. 5 – The 40 columns set with the WIDTH 40 command in "MA1".

However, going back to Fig. 3, it is possible to address any character on the screen without the need to set the number of columns using the video memory locations in the name table.

For example, if you want to display the letter "A" again in column 20 and row 10, always referring to Fig. 3 and also to Fig. 2, just run the command for direct access to the VideoRAM, that is, VPOKE in the following way: VPOKE 379,&H41

That number 379 does not make a logical sense like the LOCATE command, and it is impossible to remember the position of a character cell in this way, but we can try to recreate the coordinate logic by referring to the names table in Fig. 3 and in this way:

VPOKE [column]+[row]*40,&H [character table hex code]

Since the names table in "MA1" (SCREEN0) starts from the address "0" of the Video-RAM, it is natural to immediately enter the values of the column and pointing line for the character we want to display, entering values 0 – 39 and 0 – 23 respectively. The [row] must also be multiplied by the value 40 because in reality the counting of the cells takes place sequentially and once reached the last column this count automatically continues to the next row taking into account the number of times that 40 locations are counted, how many are the columns in "MA1".
The value to be attributed after the location of the Video-RAM is the character identified according to the table on the left of Fig. 2 so considering the hexadecimal line "40" (they are the 4 most significant bits) plus the hexadecimal column "01" (they are the 4 least significant bits), we find the position of the capital "A" character. The right table of figure 2 instead reads the hexadecimal letters to be written first are the columns and then the rows so you have both ways of reading the coordinates.
As we can see we can write the vpoke command directly to the computer obtaining the result shown below:

Fig. 6 – This is what the command looks like on the MSX screen

It should be noted that the result of the mathematical formula 19+9*40 is the famous 379 mentioned above.
It is clear that the advantage of VPOKE in addition to decreasing the drawing up of the list compared to the use of the LOCATE and PRINT commands, is direct communication with the video registers and therefore it is faster. However, there is the disadvantage that with the VPOKE it is possible to print only one character at a time on the screen, unlike the PRINT command which, after positioning the cursor, can print an entire string on the screen.

All this procedure is the same also in Alphanumeric Mode 2, "MA2" (SCREEN1) with the difference that the available columns are 32 and in addition to the models table and names table, the color table is also integrated, which we will deal with later.

The substantial difference for the reduced number of columns in the "MA2" mode is that the characters in this mode are composed of cells of 8x8 pixels, against the 6x8 pixels present in the "MA1" mode.

Therefore, in addition to resizing the area available for printing strings on the screen using LOCATE and PRINT, it also changes the starting address in the name table, which instead of starting from the location "0", starts from the address 6144, for a total of 768 cells and therefore bytes, organized as in the following image:

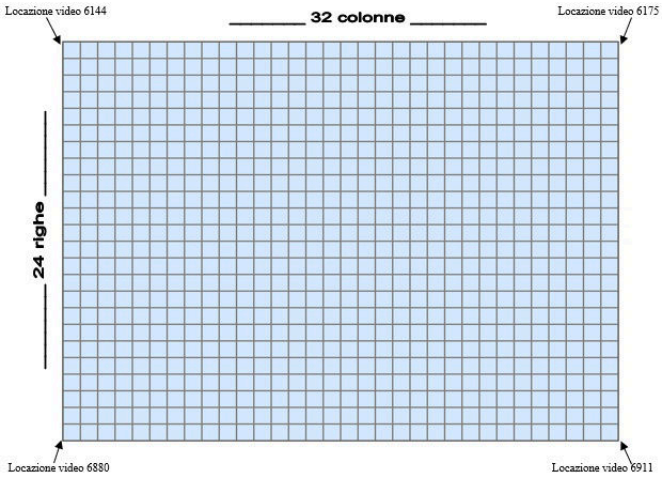


Fig. 7 - NAME TABLE in "MA2" mode in SCREEN 1

It is clear that now the values used with the LOCATE command vary from 0 to 31 for columns and always from 0 to 23 for rows, but it is also clear that the formula used with the VPOKE to place a character requires an addition in the "MA2":

For example, if you want to place a "Q" in column 12 and row 10, the formula is as follows: VPOKE 6144+11+9*32,&H51

Based on what has been said so far and from the name table in "MA2", 6144 is the Video-RAM location of the first cell in the upper left, the value "11" is column 12 (from a reference between 0 and 31), the value "9" is row 10 (from a reference between 0 and 23), which will obviously be multiplied by 32 because of the repeated columns for each row.

Now that we have understood how the Video-RAM is organized in reference to the names table in "MA1" and "MA2" it is time to address the principle on how the characters can be redefined, or redesigned at will.

Today there are many tools that allow you to process through Windows, MSX graphics of excellent artistic and functional level, in an easy way for both the creation and the programming, but it is essential to understand how the model table works. A real space in the Video-RAM, where the drawings that are used as characters in the name table are stored and redefined.

In "MA1" and "MA2" modes, the Video-RAM offers the ability to redefine all 256 characters, but first you need to understand how modifying the video memory affects the MODEL TABLE.

Let's take a step back and remember how the "MA1" and "MA2" act with the characters: in "MA1" each character is defined by a cell/grid composed of 6x8 pixels, while in "MA2" it is 8x8 pixels and its definition takes place line by line for every 8 pixels, as shown in the following figures:

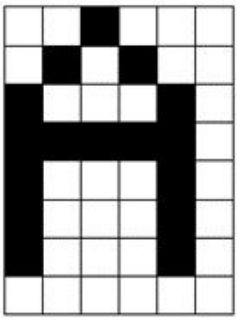


Fig. 8 - "MA1"

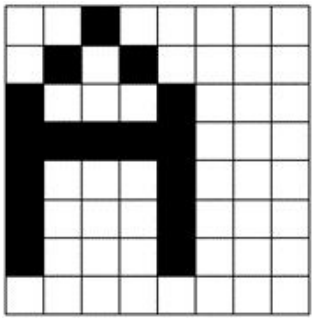


Fig. 9 - "MA2"

In "MA1" (SCREEN 0) the area of the Video-RAM dedicated to the MODEL TABLE starts from the decimal address 2048 and from the first hexadecimal character "&H00" (or even "0" decimal) of the character table. Each address of the Video-RAM starting from that 2048 (included), corresponds to a row of 8 pixels of the character, as in the following image.

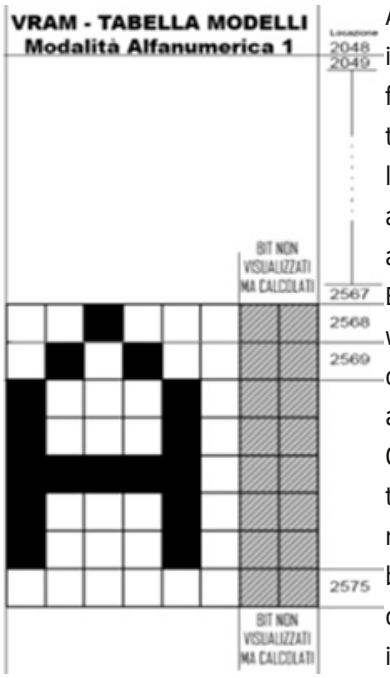


Fig. 10

As can be seen, the VRAM is represented in the figure as a "cascade" tape where for each location address are assigned values of 8 bits and therefore one byte. Based on this association we will redesign each character at will among all 256 available.

Observe how in "MA1" the last two bits on the right are not displayed, but must still be calculated, then taken into account. If we omit them, the computer

would automatically add two more significant "00" bits, that is to say to the left, with the result of translating the character of two pixels to the right and not always displaying the last two columns to the right.

So if you want, as in the example, to redefine the ASCII character "A" (uppercase), you have to start from the video location ram 2568, which is the value obtained from the sum of the first memory location of the MODEL TABLE in "MA1" with that of the ASCII character that we want to use. Now the hexadecimal code of the character "A" is &H41 which is converted to decimal as 65. FIG. 10
Since each character is composed of 1 byte by 8 rows, we will have to multiply the decimal value of the character "A" by 8, then 65x8 =520 that added to the first address of the MODEL TABLE 2048 becomes, 2048+520=2568, that is the first address shown in the figure to represent the model of the ASCII character 65, that is the capital letter "A".

The last step to take before understanding how to redefine a character is to interpret the system used to encode the content of each of the 8 locations for a single character. Always taking as an example the character "A", having ASCII code 65 that starts from the VRAM location 2568 as we see from Fig. 10, we need to know the value contained in each of the 8 bytes that make up the character to then manipulate it.
To do this, we use the VPEEK command, which reads the contents of a memory location, so it allows us to know the decimal content of a Video-RAM location. In the figure below we show a small demonstrative list.

```
MSX BASIC version 1.0
Copyright 1983 by Microsoft
28815 Bytes free
Ok
10 for b=0 to 7
20 print vpeek(2568+b)
30 next b
run
 32
 80
 136
 136
 248
 136
 136
 0
Ok
_

color  auto  goto  list  run
```

Fig. 11

In Fig.11 we see the MSX Basic screen and the list that with a simple For - To - Next cycle starts to read the content of the VRAM starting from the first memory location of the ASCII character 65 the number 2568. Once the content has been read from the VPEEK, the content is displayed on the screen 7 more times, so as to obtain the 8 decimal values that make up the capital letter "A".

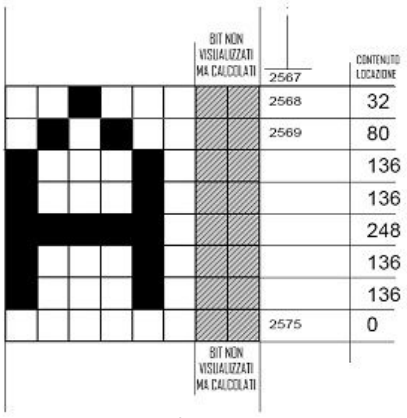


Fig. 12

Each value corresponds in sequence to one of the 8 rows that construct the letter "A", from 2568 to 2575, as in the representation shown in FIG.12.

Finally, this is how the "A" character, or ASCII code 65, is presented according to the MSX calculation methods.
Each of the 8 addresses corresponding to the character is assigned a decimal value that, converted into a binary, represents the lit pixels that make up the "A" drawing line by line.

On the TI99 that uses the hexadecimal code extrapolated from the binary to define the characters, we will have as an example that the code of the letter "A" moved to the left with respect to an array of 8x8 pixels is the following: "A" = "20508888F8888800" which is the equivalent of 32.80.136.136.248.136.136.0 written in decimal. At this point it is clear that to redefine the character '65', we will have to change each of these 8 values.

Now, for example, we want to give the "A" character our own style, redrawing it in its grid as in the next figure.

As seen in the figure below, all the locations of the VRAM that make up the "A" character have been modified in their contents, each of the 8 8-bit binary series that draws the letter "A" corresponds to the decimal value to its right. Therefore, if you want to translate all this into MSX Basic based on what you have learned so far, you must build a routine that writes the respective 8 values in the 8 corresponding locations that will redefine the '65' character in the new form.

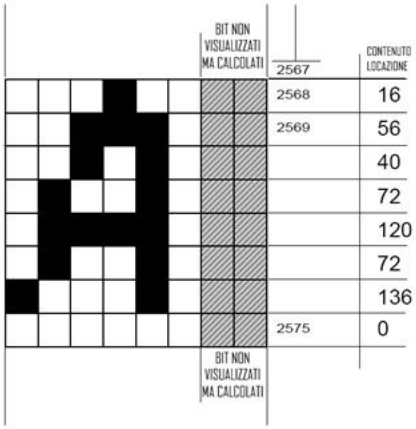


Fig. 13

Below we show our program to redefine the "A" character in the new graphics.
As you can see, you have opted for the convenience of writing directly from the VRAM 2568 location, instead of

```
MSX BASIC version 1.0
Copyright 1983 by Microsoft
28815 Bytes free
Ok
10 for b=0 to 7
20 read ch
30 vpoke 2568+b,ch
40 next b
50 data 16,56,40,72,120,72,136,0
60 restore
run
Ok
■

     A  A  A



color  auto   goto   list   run
```

Fig. 14

the ' 2048+(65x8) ', but in case of need or difficulty it is always better to take into account this system to be adopted for the redefinition of the ASCII characters in the "MA1".

Now the "A" character has been modified and its modification will remain so until you change the content again in the corresponding VRAM addresses on which we have already worked, for example by performing a reset . At this point it is clear how to redefine a character, but so far we have done so in the "MA1" to learn its principles, however the "MA1", or SCREEN 0, is a purely textual mode, with the only final purpose of writing texts and writing programs in BASIC, limiting the use of colors to only two from the palette of 16 colors of the VDP.

In "MA2", or SCREEN 1, the procedure is practically the same. There is only one difference relating to the starting address' 0 '(zero), maintaining the encoding of the ASCII code for the characters, so always taking the letter "A" as an example, its code still remains the' 65 ', so that the entire procedure exposed so far remains the same, with the variant that is no longer used 2048 as the reference VRAM address but' 0 '.

It is evident as in Fig. 15 that the syntax 'VPOKE [character code]*8 ' to locate the VRAM location of the character to be redefined, is a little easier since the address' 0 'of the MODEL TABLE in "MA2" can be omitted. Once the first of the 8 memory locations of the character has been identified, the encoding of each of them remains the same as in "MA1".

```
Ok
list
10 FOR B=0 TO 7
20 READ CH
30 VPOKE 65*8+B,CH
40 NEXT B
50 DATA 16,56,40,72,120,72,13
6,0
60 RESTORE
Ok

run
Ok

A  A   A■




color  auto   goto   list   run
```

Fig. 15 - The same routine of fig. 14, in "MA2" and then SCREEN 1

However, calculating in the way already known the first location of the letter "A", the mathematical expression 0 + 65 x 8 gives as a result 520, and here comes the figurative representation of how the character '65' is configured in the VRAM MODEL TABLE in "MA2".

The figure next to it finally shows the possibility of using the entire 8x8 area and then also the last two columns of the character cell will be displayed if redefined. Nothing changes from the "MA1", the reading and writing phase from the MODEL TABLE of the VRAM, we will always have 256 characters available to be redefined at will and this time a better detailed possibility to manage the 16 colors on the screen, an operation that will be expressed later and will close this tutorial.

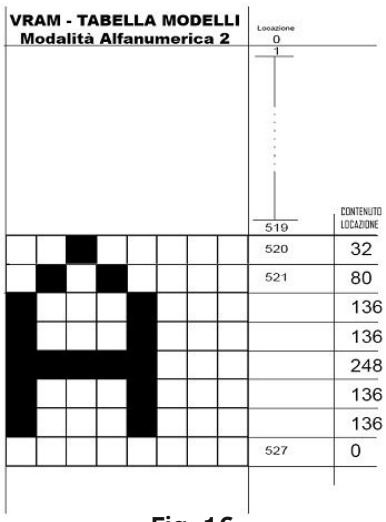


Fig. 16

At this point we can repeat the character writing operation but this time instead of the '65' we will take one of the special ones that are usually used only on special occasions. Now let's choose a character for creating an animation game.

The character chosen for this practical part is the '234', stored in the ASCII Table of the European MSX with the symbol 'omega'.
This is how the "omega" character appears in the MODEL TABLE, starting from the VRAM 1872 location, identified with the calculation of the ASCII code 234, multiplied by 8, as well as on the left the decimal values for each VRAM

location that makes up the character. So, repeating once again what has been said, we must change the values of the 8 locations, from 1872 to 1879, establishing first what we want to achieve.

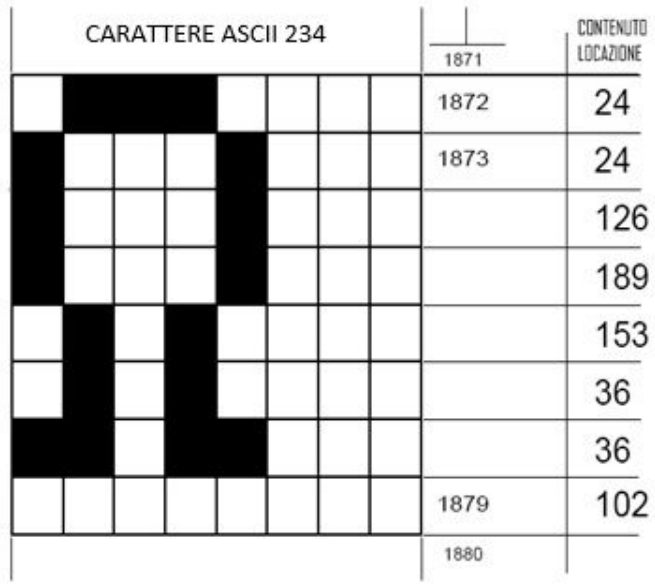


Fig. 17

Below instead we have the new design that we want to take on character 234.

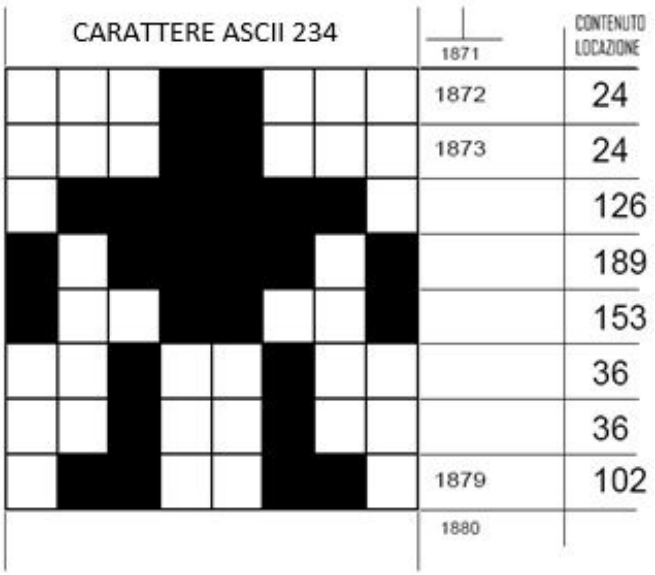


Fig. 18

It seems like a funny thing, but it is the basis of the creation of advanced graphics on MSX and especially for the creation of games.

As already done for the character '65', we now have to change the values of the character '234' in the MODEL TABLE, from location 1872 to 1879, with those illustrated in the right column.

Below we will show our definitive list which is the summary of what is described here, that is, character redefinition and its representation on the video.

Fig. 19

Finally we have redefined a character as we wanted it and where we wanted it on the screen using only the addresses in the Video-RAM, but through the MSX Basic.
The logic as we have seen is slightly complicated compared to the TI99 commands related to these specific uses, but once we get used to it, it becomes quite easy to use.
Just for completeness, below we will compare the two basic listings used by the two computers to obtain the same result: the representation of our little man in the center of the screen using characters.

```
MSX
10 CLS
20 FOR B=0 TO 7
30 READ CH
40 VPOKE 234*8+B,CH
50 NEXT B
60 READ 24,24,126,189,153,36,36,102
70 RESTORE
80 VPOKE 6144+15+12*32,324
90 GOTO 90

TI99/4A
10 CLEAR CALLS
20 CHAR CALLS (150,"18183EBD99242466")
30 HCHAR CALLS (12,16,150)
40 GOTO 40
```

In the second part of the tutorial we will discuss the color table whose organization requires learning some concepts as it was for the two tables represented.
See you next time.

For comments, information, suggestions..:
Astharot@live.it

Abacus Super C - The C language on the Commodore 64

by Francesco Fiorentini

I really like reading the posts in the Facebook groups dedicated to retrocomputing. You discover many novelties and at the same time you can find interesting ideas for articles.

A few weeks ago, I remember coming across a post where someone asked if there were any Commodore 64 C compilers in the '80s. At the time I never used a C compiler on the Breadbin, my first experience with this language dates back to when I owned the Amiga 500, but I remember in the following years that I came across at least one compiler from the past.

In fact, after a quick search, I was able to find at least two compilers that had been produced in the 1980s for the Commodore 64: the **Abacus Super C** and the **Power C**. The Abacus Super C is a C compiler developed by Franz J. Hauck and Thomas Eirich between 1983 and 1987. The software was released by Data Becker in 1985 under the name C-Compiler 64, later under the name Profi-C and sold by Abacus Software in North America and First Software Limited in England. I don't think it was ever distributed in Italy in the '80s. If anyone had any news about it, I'd be interested to know more.

Abacus Super C consists of two versions, one for the C64 and one for the C128. As can be seen from the table below, version 2.03 of 1987 is the latest version released for the C64. And it is also the version that we will use in the article to compile the test program written in C.

Release date	C64	C128
08.05.1985	v1.02	/
25.06.1985	v1.10	/
11.09.1985	v1.21	/
16.01.1986	v2.00	v3.00
16.07.1986	v2.01	v3.01
29.09.1986	v2.02	v3.02
15.10.1987	v2.03	v3.03

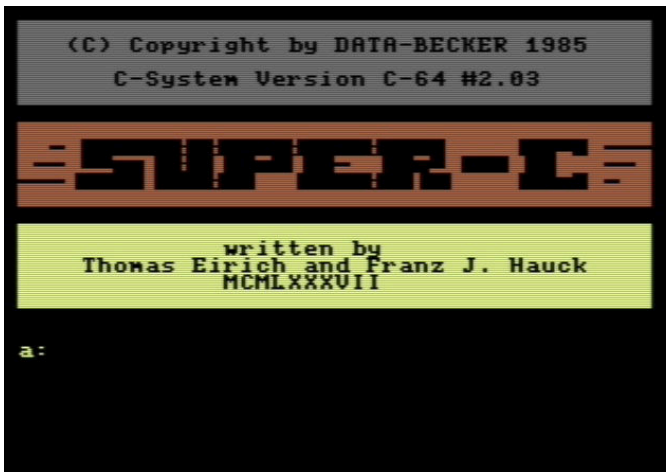
Around the same time, in 1986, another compiler, the Power C, was released under the label Better Working Software by Spinnaker Software Corp., Cambridge (USA). As confirmed also by some articles that I found on the net, Power C, as its name indicates, is actually powerful and performing and able to generate smaller and faster compiled code of the Abacus Super C. The Power C will surely be the protagonist of an upcoming RMW article. :-)

C language

The C language was developed at the Bells Labs by Dennis Ritchie between 1969 and 1973, but reached its consecration only in 1978 after the publication of the book The C Programming Language by Brian Kernighan and Dennis Ritchie.

The C language has been used to replace most of the assembly code of the Unix Operating System, becoming de facto the main language for the realization of highly performing operating systems, programming languages, libraries, games and applications.

After the publication of Kernighan and Ritchie's book, several dialects began to flourish, making it necessary to define a standard. This is how the ANSI C standard was born, which will guarantee the portability of programs written in C on all platforms and compilers adhering to this standard.



Abacus Super C

The Abacus Super C, while quite close to the standard, is only compatible with early versions of the K&R, so the function and include statement must be written in a slightly different way.

ANSI C:

function declaration: int square(int x)

include statement: #include <stdio.h>

Abacus Super C:

function declaration: int square(x) int x;

include statement: #include “stdio.h”
There are also other small differences, but they do not affect the goodness of this product.

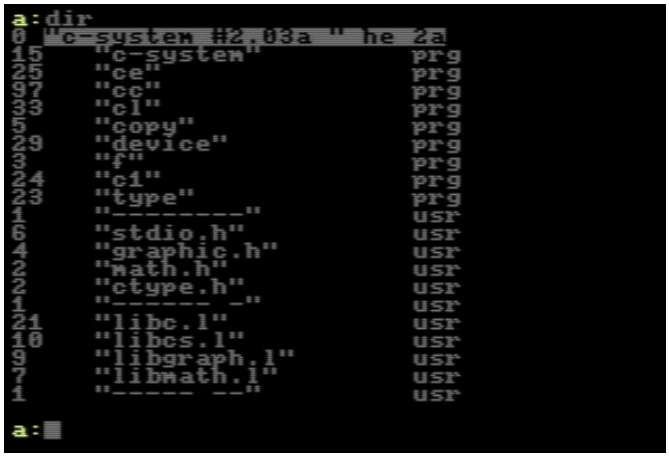
Development environment
At the start of the Abacus Super C we will be greeted by an introductory screen and a well known prompt, at least to those familiar with the MS-DOS world:
A:

Obviously the letters a: refers to drive 8, following this logic:

```
Device letter a  b  c  d  e  f  g  h
Device number 8  9  10 11 12 13 14 15
```

At this point we can use a whole series of commands already available to the user, called residents, because unlike the so-called transients, they are already present in memory and do not have to be loaded from the disk:

dir <arg> - Displays the current drive directory. You can also use wildcards
dir lib*



err - reads the error message of the specified device
e.g. a: err
00, okay,00.00

com <arg> - executes the text <arg> as a command
v - validate disk
r - rename file - e.g. a:com r:prog=test

tod (in V2) or time(V3) - displays the current time. The clock is set to zero at startup, the time that appears the first time is the time since you started working with Super C.

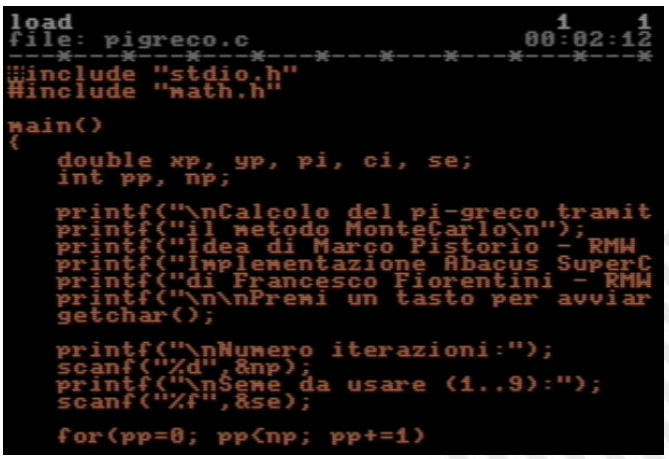
set <time> - sets the clock. <time> uses the form format HH: MM: SS
HH indicates the hours (00-23)
MM indicates minutes (00-59)
SS indicates seconds (00-59)

end - exits the Super C environment and returns to the Basic V2. As if a soft reset had been made.

Here are some of the transient commands, which you might find useful. For the full list, please refer to the manual.
device - allows you to change the device address of the disk drive from the software.
copy <source> <dest> - allows you to copy one or more files. <source> and <dest> are file names with the device identifier.
es: copy a:test h:*
c1 - is a command that invokes the contemporary compilation and linking process
es: c1 <x:file> <link1> <link2> …
invokes the following command: cc <x:file>.c <x:>o.o <x:>error.e <x:file> <x:>libc.l <x:link1> <x:link2> …
type <file> - print the contents of the file on the screen

The commands ce (editor), cc (compiler) and cl (linker) are also considered transient, but we will see them in the paragraphs dedicated to them.

The Editor
As you may have guessed, the Abacus Super C is proposed as a complete suite for C programming. Of course, the package could not lack an editor that would allow the creation, modification and maintenance of our C listings. The editor must be loaded from the official disk of the Abacus Super C, as a transient command, via the instruction:
ce



The editor is not really user-friendly, especially for those unfamiliar with text editors such as vi, EMACS or Wordstar... Commands are not accessible through menus, but must be entered by the user using certain key combinations. Here is a short list of the available commands that you will need to start writing your first program; also in this case, for the complete list, please refer to the official manual, really detailed and well made.

The command [F5] activates the command mode.

- **[F5] [n]** to create a new file
- **[F5] [x]** to exit the editor
- **[F5] [l]** to load an existing file
- **[F5] [s]** to save the current file
- **[F5] [h]** to search for a string
- **[F5] [r]** to replace a string
- **[F7]** create an empty row
- **[F8]** delete the current row

Warning: creating a new file you have to choose the length of the program lines; you can choose between 40 or 80 columns. The viewable columns will always remain 40, but you will enable automatic horizontal scrolling to reach 80 columns.

Warning: when a new file is created, it is empty, no editing lines are present. Press [F7] to insert a new line. Obviously you will have to do it for every new line of program that you want to insert.

This editor is really powerful: you can even copy/move entire sections of text. If you are really going to try the thrill of writing a C program on the Commodore 64, I suggest you read the manual and take advantage of the features provided. Personally, using an emulator, like VICE, I couldn't find a way to display the closed brace on the screen, so every time I copy and paste the line that contains it... :-D

Compiler

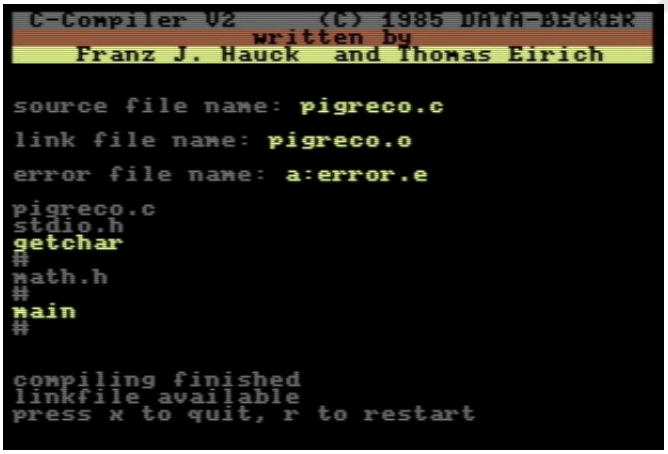
The compiler is the program that translates the instructions in C language that we have inserted in our source file, in an object program (in this case in machine language). Actually the compiler also takes care to perform some steps to optimize the code and to find out any errors. If there are syntax or lexical errors in the source code, the compilation process will be interrupted and we will have to correct the source file to finish the compilation successfully.

The Abacus Super C compiler can be called via the command: **cc**

Once the compiler has been loaded, we will have to provide the following information:

- source file name: program.c
- link file name: program.o
- error file name: error.e

Source file name is obviously the name of our source file.



Link file name is the name of the object program that we will have to pass to the linker.

Error file name is the name of the file that will contain errors detected by the compiler during compilation.

If the compilation is successful and there are no blocking errors, we can move on to the next step, the linker.

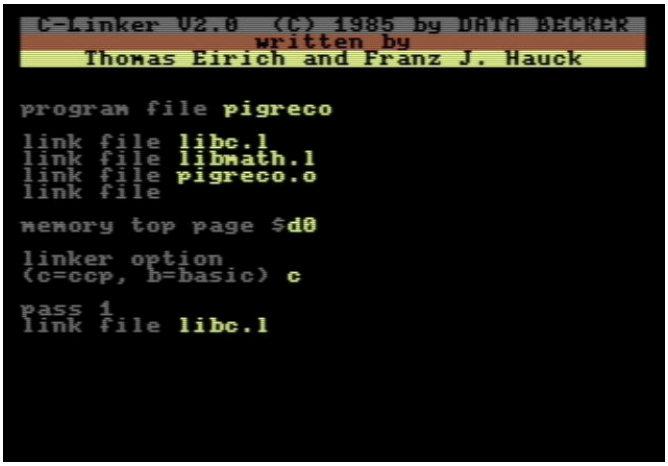
Linker

Some built-in header or library files are stored in the C language. These libraries are predefined and contain essential functions for running the program. The linker is the program that connects the functions invoked by our source to the already compiled libraries.

The Abacus Super C compiler can be called via the command: **cl**

Once the linker is loaded, we will have to provide the subsequent information:

- program file: program
- link file: libc.l
- link file: program.o
- memory top page: $d0 (default)
- linker option (c=ccp, b=basic): c (default)



Obviously we have to link, in addition to the object file created by the compilation, also all the libraries that contain the functions that we have used in our code. For example, in the test program of the next paragraph, we

will also have to link the libmath.l file that contains the sqrt function (for calculating the square root).

A sample program in C

Now that we are familiar with the tools available in the Abacus Super C suite, we can try to write, compile and link our first program in C.

After spending a bit of time thinking about what a good example could be for a first simple C program, without ending up in a banal Hello World, I finally came up with the idea. Why not translate the Greek Pi calculation program with the Monte Carlo method proposed in BASIC by Marco Pistorio in the previous issue (31-IT or 09-EN) of RMW?

I do not go into explaining the technique because already exhaustively described by Marco in his article, so I move directly to the code:

```
#include "stdio.h"
#include "math.h"

main()
{
double xp, yp, pi, ci, se;
int pp, np, h, m;
printf("\nCalculation of the pi-green by\n");
printf("the MonteCarlo method\n");
printf("Idea by Marco Pistorio - RMW 31\n");
printf("Abacus Super C Implementation\n");
printf("by Francesco Fiorentini - RMW 32");
printf("\n\nPress a key to start the calculation");
getchar();
printf("\nNumber of iterations:");
scanf("%d",&np);

for(pp=0; pp<np; pp+=1)
{
sscanf(gettime(),"%d:%d:%lf",&h,&m,&se);
xp=rnd(se);
yp=rnd(se);
printf("\n>pp=%u",pp);
printf("\n>xp=%g",xp);
printf("\n>yp=%g",yp);

if (xp<=sqrt(1-yp*yp))
ci=ci+1;
}
pi=(4*ci/np);
printf("\n--> Calculated Greek: %g\n",pi);
getchar();
}
```

The program is relatively simple, and even those who have never seen a line of C before can easily guess the syntax. A couple of things to note: the FOR loop that has a completely different syntax from the BASIC one and the use of a variable seed for the generation of random numbers. During my tests I realized that the random numbers generated by the function rnd(), were not random at all. To overcome this problem I had to provide a different seed to the rnd() function. So I thought to use as seed the seconds read by the sscanf function (gettime(),"%d:%d:%lf",&h,&m,&se).

The code will not be super efficient, but at least the value returned by the rnd(se) function is a little more random. To compile the program, simply follow the instructions in the compiler and linker screens assuming that you will call the program pigreco.c.

```
>pp=93
>xp=  0.15226412634
>yp=  0.99428972625
>pp=94
>xp=  0.78753603715
>yp=  0.47741622687
>pp=95
>xp=  0.44638717757
>yp=  0.95760769187
>pp=96
>xp=  0.079666268779
>yp=  0.081556633813
>pp=97
>xp=  0.43485273537
>yp=  0.94084412395
>pp=98
>xp=  0.50702078314
>yp=  0.12100226316
>pp=99
>xp=  0.37777903094
>yp=  0.17411989439
>ci=  79
>pp=100
--> PiGreco calcolato:  3.16
```

For those who want to try writing their own program in C with the Abacus Super C, I suggest to follow the instructions in the manual and create a program disc that already contains the libraries to link to not going crazy with the swapping of the disks...

Have fun with the Abacus Super C.

Useful links

Abacus Super C - D64 image:
https://www.lyonlabs.org/commodore/onrequest/abacus-super-c.d64

Abacus Super C Manual:
https://www.lyonlabs.org/commodore/onrequest/Super-C-Abacus.pdf

RetroMath: Calculation of the function sin(x) for "tough men"

by Marco Pistorio

INTRODUCTION

Have you ever had to use a trigonometric function with a language where such functions are not usually available? Well, I did. More precisely, almost thirty years ago. I worked on the first IBM AS/400 systems, using the old RPG version III language.

The language in question was born in 1959 and was developed by IBM.

RPG, acronym for "Report Program Generator", allows you to easily generate reports by pulling out data stored in many files.

Unfortunately, this old language did not feature any function that allowed trigonometric calculations.
So, what? How do you determine, for example, the values of sin(x)?

Using pre-calculated tables with the values of sin(x) could be an easily feasible way.
But instead, I decided to "raise the bar a little", taking advantage of my newly acquired math knowledge at the university.
I thought, in particular, about the Taylor-McLaurin series, which are an excellent means of approximating a function with an arbitrary k-grade polynomial.

This is due to the fact that the sin(x) function is a continuous function, always derivable and it is therefore always possible to determine its first, second, third derivative, and so on at any point in the function's domain. It is demonstrated that the function sin(x) is analytical, a necessary condition for Taylor's formula to be applied.

Bearing these assumptions in mind, Taylor's formula

$$f(x_0)+\frac{f'(x_0)}{1!}(x-x_0)^1+\frac{f''(x_0)}{2!}(x-x_0)^2+\frac{f'''(x_0)}{3!}(x-x_0)^3+\cdots$$

states that:

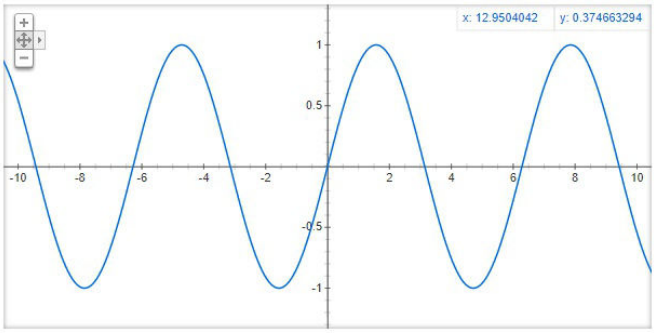
$$\sum_{n=0}^{\infty}\frac{f^{(n)}(x_0)}{n!}(x-x_0)^n.$$

which can be written in a more compact form such as:

It is important to notice that the error made in this approximation is not greater than the first derivative that is neglected in the calculation of the polynomial, the latter polynomial which is called the "Taylor polynomial".

A Taylor development in which x0 is equal to 0 is called "MacLaurin development", a condition that comes handy for our objective since sin(x) has a well-defined value for x=0, it is always calculable and it has a finite value for all the derivatives of the function sin(x) for x=0.

The following are further references that those who wanted to get deep into the issue from a mathematical point of view:



Graphical representation of sin(x)
image from Google

https://www.math.it/formulario/Taylor-McLaurin.htm
https://en.wikipedia.org/wiki/Taylor_series

CALCULATION OF THE FUNCTION

To determine the various elements of the Taylor polynomial it is necessary to know the first, second, third, etc derivative of the sin(x) function by x=0.

*The calculation of such derivatives is quite simple.*Below I report the results, omitting the relative calculation procedure for brevity.

- Derivative before cos(0°)=1
- second derivative -sin(0°)=0
- third derivative -cos(0°)=-1
- fourth derivative sin(0°)=0

and the values of the successive derivatives are repeated cyclically, the fifth is equal to the first, the sixth to the second, the seventh to the third and so on.

For those who would like to make a quick comparison of the data I have obtained, I would like to point out this useful online computer:

https://www.youmath.it/ym-tools-automatic-calculator/analysis-1/derivating-a-function.html

The other elements we need are the factorial of the various natural numbers, from n=1 onwards.

These are numbers that get big quickly. So I pre-calculated the factorials from 1! up to 13!
My Taylor polynomial will then stop at grade 13.

At this point you need two vectors, one with the derivatives of the various orders of sin(0) and one with the factorials of n! and a sum within a for loop to get the desired result.

Next, take a look at the code that, for simplicity, I've written in Commodore BASIC V2. The method described can also be used, by modifying the code appropriately, for the determination of other trigonometric functions, such as cos(x), tan(x), sec(x), arcsin(x), arctan(x) and others.

*Greetings to all, dear readers.
See you next time!

LISTING IN BASIC V2

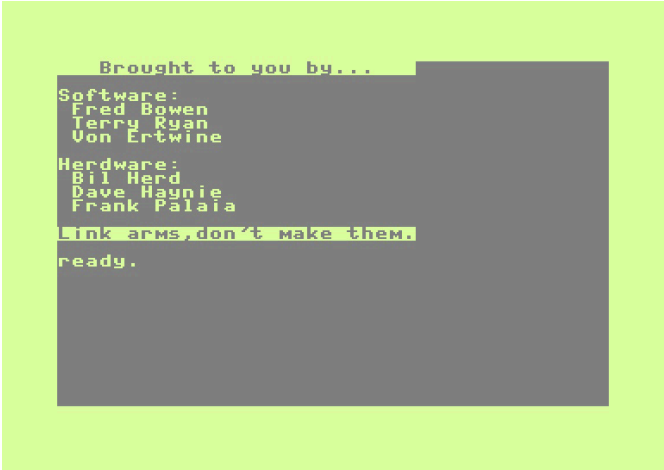
```
10 rem ======================
20 rem = Calculus of sin(x) =
30 rem = by using Taylor-   =
40 rem = McLaurin series.   =
50 rem = by marco pistorio  =
60 rem = for RMW magazine   =
70 rem ======================
80 :
90 dim d(4),f(13)
99 :
100 data 1,0,-1,0
110 data 1,2,6,24,120,720
120 data 5040,40320,362880,3628800
130 data 39916800,479001600
131 data 6227020800
140 :
150 for i=1 to 4:read d(i):next
160 for i=1 to 13:read f(i):next
170 :
180 an=78:rem angle for which calculate the
sinus
185 :
190 if an>=90 and an<=270 then an=180-an
200 if an>270 and an<=360 then an=an-360
210 :
220 pi=4*atn(1):rs=0
230 ar=an*pi/180:rem converts in rad
240 for x=1 to 13
250 if x=1 then ac=ar:goto 270
260 ac=ac*ar
270 dc=x
280 if dc>4 then dc=dc-4:goto280
290 rs=rs+ac*d(dc)/f(x)
300 next
310 :
320 print "angle (degrees):";an
330 print "sin (";an;") approx:";rs
340 print "sin basic v2:";sin(ar)
350 end
```

**Calculation of sin(x)
by Taylor/Mclaurin series**

Commodore C128 - Analysis of an "Easter Egg"

by Gianluca Girelli

Following a tradition that was consolidating as a result of the first legendary "easter egg" hidden inside the game "Adventure" (Atari 2600 - Warren Robinett) and, as far as Commodore is concerned, inside the Plus/4, a secret message was also hidden in the C128. Said message was a tribute to some of the most relevant developers of the hardware and software teams working on the machine.
Among them were: Fred Bowen (kernal developer), Terry Ryan (BASIC 7.0), Von Ertwine (CP/M implementation), Bil Herd (original computer design and hardware team leader), Dave Haynie (systems integration, signal analysis etc) and Frank Palaia (Zilog Z80 integration with CMOS 6502 etc) (figure 1).



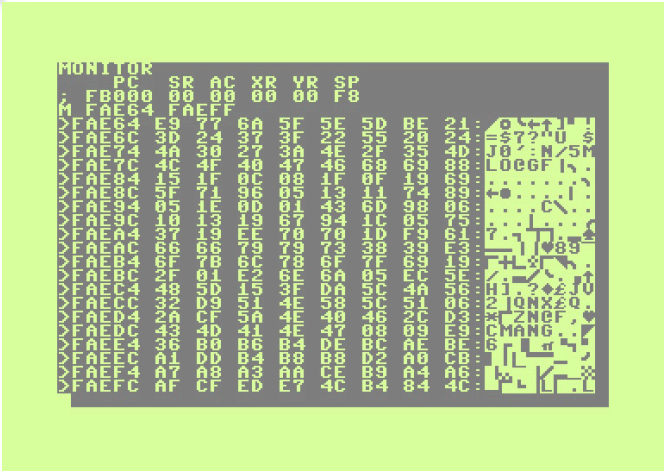
The message said "Link arms, don't make them", was activated by the BASIC command "SYS 32800,123,45,6" and was located inside "Bank 15" [Note 1]. Its content had beeen previously encrypted so that it wasn't immediately recognizable by mean of a simple hexadecimal dump.

Since I don't have a particular knowledge of 6502 Assembly (yet), in order to better explain the Easter Egg without making any blund mistake I referred to a video by David Youd that I retrieved from his YouTube channel (link available at the end of article): please refer to it should any more information be necessary. For the sake of those who are not so experienced with Commodore 8-bit systems, I will try to sum up the topic in the following paragraphs.

The first thing that catches the eye of the most experienced programmer is the format of the "SYS" instruction, used to execute a resident machine language routine or one defined by the user ("sys" is short for "system").
On the C64 this command has no other parameters than the address at which the program to be launched is stored, while on the C128 it has up to four additional parameters used to preload with preset values one or more registers of the chip in the following order: accumulator, "X" register, "Y" register and "Status" register. Therefore, the command actually invokes the routine previously stored at the location 32800, loading the accumulator with the value "123" and the registers "X" and "Y" with the values "45" and "6" respectively.

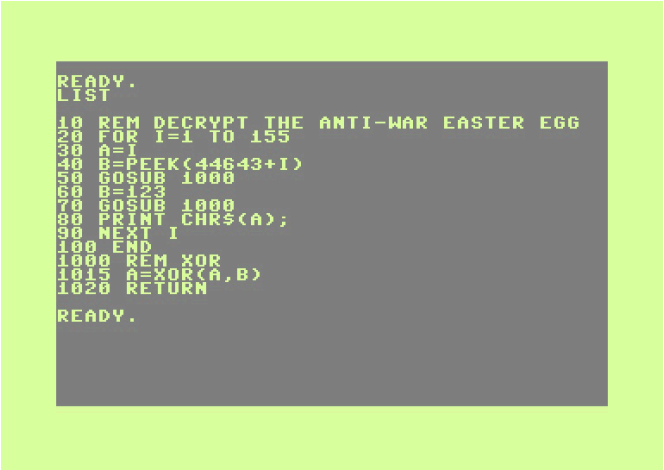
The C128 has an integrated assembler/disassembler environment that can be activated via the "MONITOR" command and, since we know at which address the program starts (location 32800), we can display the relative code by using the command "D F8020" which means: "start disassembling from location 32800 in the memory bank 15" ("15" decimal equals to "F" hexadecimal; 32800 to "8020"). Since routines always end with a "RTS" command ("return from subroutine"), after some trial and error we discover that the entire easter egg code is viewable with "D F8020 F8039". (figure 2)

A thorough examination of the Assembly code reveals the two "EOR" instructions (exclusive OR; the first is at the address "F802A") which are the core of the decryption program: in particular, the first "EOR" tells us that one of the two parameters is placed at the address obtained by adding "$AE37" (decimal 44599) to the contents of register "X", initially loaded with the decimal value "45". So here's how we found that the encrypted text starts at location 44644 (decimal) and that we can therefore display it with the following Monitor command: "M FAE64 FAEFF". (figure 3)



Then, in order, there are the instructions used to call the internal subroutines that display the characters on the screen, and the ones which incrementthe loop counters until all the contents of the Easter Egg is shown on the screen.

The author of the video also translated the Assembly program into BASIC 7.0, easier to analyze for study purposes (figure 4).



For the readers' convenience I have listed below the code of both programs: as far as the BASIC code is concerned, you can either type it in by hand or use the "copy / paste" feature of emulators such as VICE (I recommend using the emulator suite for 8-bit Commodore machines included in Cloanto's "C64 4ever"); as far as the Assembly code goes, it can be entered as follows in case you want to experiment with the monitor:

- type MONITOR to enter the machine language monitor;
- start typing the instructions with "A F8020 STA $ 70" (this will activate automatic numbering and direct conversion from Assembly code to Machine Language);
- continue typing in the instructions as reported in the following pages;
- once finished, press "Return" and type "X" to exit the Monitor;
- launch the Easter Egg with the command "SYS 32800,123,45,6".

Have fun!

```
STA $70
TYA
SEC
SBC #$05
STA $71
LDA $71
EOR $AE37,X
EOR $70
BEQ $8075
JSR $FFD2
INC $71
INX
BNE $8028
RTS
```

```
10 REM DECRYPT THE ANTI-WAR EASTER EGG
20 FOR I=1 TO 155
30 A=I
40 B=PEEK(44643+I)
50 GOSUB 1000
60 B=123
70 GOSUB 1000
80 PRINT CHR$(A)
90 NEXT I
100 END
1000 REM XOR
1015 A=XOR(A,B)
1020 RETURN
```

[1] The Commodore C128, like all 8-bit computers, cannot "see" more than 64kb at the same time. To get around this limitation the hardware team refined the concept of splitting the memory into segments (called "banks"), previously used on other computers.

These banks can be selected by the user as desired by means of the "BANK bank_number" command.

There are 16 memory banks on the C128 which are managed by the MMU (Memory Management Unit).
One of the most important for the programmer is Bank 14, which holds the character ROM (see also article on character redefinition on RMW English n. xx).

https://youtu.be/ZO_aBoCQQkU

Master Mind on PICO

by Stefano Bodrato

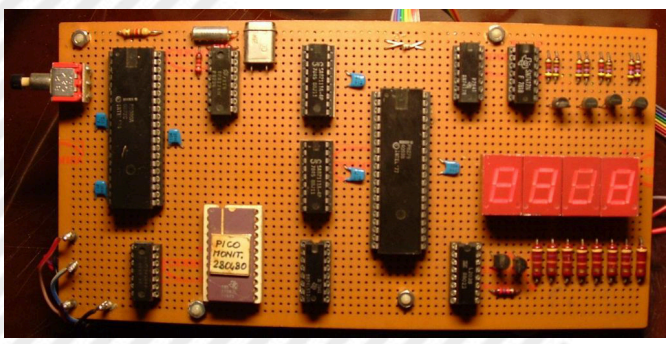
Hello everyone, I am, like many "nerds" who grew up in the 80s, a fan of the history of technology and computer science in general, which often leads me to do senseless research and unlikely software experiments. Among others, I collaborate with "z88dk", a kit for z80 systems that includes a C compiler. This language has been used for several interesting creations, including a Twitter client for the ZX Spectrum and a WEB server still active on a ZX81.

During research carried out for the project "z88dk" (oriented to census the old microcomputers with Z80 processor and the respective emulators) I came across the "PICO", a system reduced to the minimum terms. Although it was based on 8085, so not relevant to the goal I had set for myself, I was impressed by the fact that Forlani (its author) had found a way to make software with so few resources.

In particular, the game "Master Mind" occupies half a K of ROM, very little RAM (I think about forty bytes could be enough), uses a display of only 4 digits with 7 segments and a simplified keyboard containing practically only decimal numbers.
It is a slight variation of the board game that to simplify the logic of the program makes the life of the player difficult, because the clues regarding the numbers placed in the wrong position are not accurate. For some strange reason the game remains just as compelling... Maybe more engaging!

So, in the spring of 2014, I contacted Paolo Forlani, author of the "PICO" and the game and I immediately received an enthusiastic response!

Paolo explained to me that he still has the prototype of the PICO (pictured) but that he no longer has the EPROM of the MASTERMIND program.



However, he immediately passed to the scanner the paper version that he had printed on paper at the time and provided me with a copy.

Here's what he wrote to me about the PICO and the choice to use an 8085 CPU:

I didn't have the SDK-85: the project dates back to an earlier time (1978), when there was only the 8080 and the 8279 display controller had just come out. So I never even used the Intel monitor, and I wrote the PICO one from scratch.

The development system was one of the first Intel, equipped only with the telewriter and without memory and without disk: the assembler was loaded into memory by perforated tape (45 minutes), then the program was assembled by passing the perforated tape with the source. The assembler was two steps away, so you had to pass the source tape twice, or three times if you also wanted the list. The comments were limited to the minimum, because they lengthened the tape and the assembly time...

The program was then poured into Intel's first ISIS development system (which finally had the floppy), and the list I sent her came from that. This "new" system also had one of the first circuit emulators, a masterpiece!

So the schema is completely original, obtained by examining the datasheets of the devices...

Once I received the program, I was faced with the need to find a suitable platform: no one has ever created a PICO emulator!

Discarded the idea of building one, I identified the SDK-85 platform in the multi emulator MESS. It was, in its original form, a base produced directly by Intel to facilitate the implementation of projects based on their new microprocessor.

Both the "PICO" and SDK-85 use the same controller 8279, but the wiring to the display segments is slightly different, and therefore I had to appropriately correct the "font" or rather, the display transcoding table:

```
PEAK  SDK-85  Output
--------------------
$FC    $F3     '0'
$60    $60     '1'
$DA    $B5     '2'
$F2    $F4     '3'
$66    $66     '4'
$B6    $D6     '5'
$BE    $D7     '6'
$E0    $70     '7'
$FE    $F7     '8'
$F6    $76     '9'
(etc...)
```

PICO sees the display controller at $3001, while SDK-85 must point to $1900.
This applies to both writing on the display and reading the keys, the keyboard map varies in this way (I only report the positioning of the keys from '0' to '9'):

```
PEAK              ---   SDK-85
0,0,0,0,0,0,0,0         0,1,2,3,4,5,6,7
1,2,3,0,0,0,0,0         8,9,0,0,0,0,0,0
4,5,6,0,0,0,0,0         0,0,0,0,0,0,0,0
7,8,9,0,0,0,0,0         0,0,0,0,0,0,0,0
```

The PEAK RAM is in the range of $3800 to $38FF; in the adaptation I had to move in the range of $2800 to $2FFF, but otherwise the program does not require changes that make it distinguishable from the original.
Basically I can confirm that Paolo had really designed everything from scratch. This was much less frequent than you might imagine, both for hardware and software aspects.
Being able to exchange those four emails with one of the pioneers of microinformatics was exciting. :)

To play with "MASTERMIND" on the PICO in 2021 you have 4 options:
- Build the PICO machine and program the ROM with the binary image I produced (I could not test it but I checked the operation of the variant for SDK-85).
- Use a ZX81 or a ZX81 emulator with my game port. Of course the gaming experience will be different, but equally "vintage"... Thanks to the genius of Paolo Forlani there is no need for RAM expansions, just the basic configuration "European" with 1 Kbyte. :) Yet Another 1K mastermind game - Sinclair ZX80 / ZX81 / Z88 Forums (sinclairzxworld.com)
-> https://sinclairzxworld.com/viewtopic.php?t=1324
- Use MESS/MAME to emulate SDK-85. You need an old version (for example 0.157) that does not impose validity on the ROM checksum, or a recent version (2019..2021) which includes it among the options. For the first case, in the "roms'' folder remove any "sdk85.zip", create a subfolder called "sdk85" and copy it into "sdk85.a14", which in this case instead of the Intel ROM contains MASTERMIND assembled and ready to use, otherwise you will have to use the filename assigned by the MAME team (mastermind.A15).
- Own SDK-85 hardware (original or rebuilt) and use the specially modified ROM.

The game instructions derived from the original article of CQ Elettronica (an Italian magazine), are summarized in the MAME source:

Start, and press 0 to start.
The game will show '----', you will have to try to guess a number between 0000 and 9999.
Enter your attempt, the computer will respond by showing on the left the number of exact digits, on the right a clue, slightly different from that of the original game (which makes the game slightly more difficult but rather intriguing).
When the exact number is discovered, then the computer will flash it. Pressing 2 will show the score, that is the number of attempts that were made before guessing. Needless to say, the lower it is, the better you will have played !
Press 0 to start over.

The PICO machine could be made in two configurations; for the game I described, 9 keys and 4 digits with 7 segments were enough!
The monitor required a slightly larger keyboard.

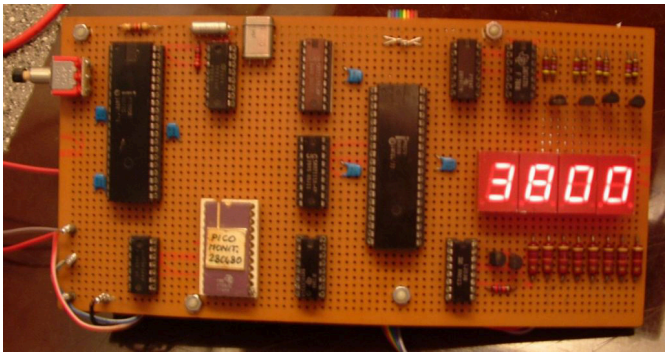
The listings

Mastermind.asm is my reconstruction of the game in PICO version (never tested), it is slightly improved to recover some bytes. It is still valid as a comparison term to understand how close the two platforms were. For my convenience I used the Z80 mnemonic notation, which I think is more readable. The original listing is obviously written with Intel notation.

Forlani created his card in 1976, a year before the launch of SDK-85, with the aim of allowing many hobbyists in the world of electronics to approach the world of computer science at a low cost.
The effort to make the circuit sufficiently essential to be built even by beginners without having to resort to printed boards is evident.

In the photos, the extended version of the keyboard (also valid for the "monitor"):

and the peak on, with the monitor EPROM operational:

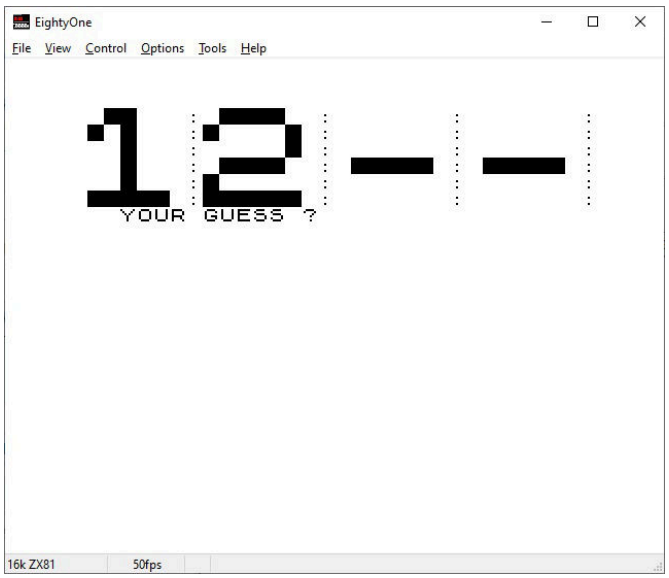


MONITOR.PDF could be useful for those who want to use MAME and build the emulation of the PEAK in the two possible configurations.

I don't know if there has ever been any software other than these two EPROMs. It should be borne in mind that not all current literature existed at the time, just as the current spread of IT culture was lacking: few in the late 70s had a precise idea of what a computer was, when it differed little from microcomputers, and what it could do. Needless to say that in 5 years the world would change...

The game in my variant for ZX81 without expansions
Given the fact that the ZX81 in the 1K version must sacrifice a good part of it for system variables and the screen area, it is clear how compact the code designed by Paolo was.

Even the initial loop, when the player has to press‘ 0 ’to start the game, has its own function, which is to construct the random number to guess.



The various files mentioned by Stefano in the article can be found in the link at the bottom of the Bibliography.

Bibliography (available online):

Z80 Assembler Programming Guide on the PICO COMPUTER, (Dante Del Corso - Gruppo Editoriale Jackson)

SDK-85 System Design Kit User's Manual, (1978 Intel Corporation)

Article "the PICO", (CQ Elettronica 12/80, 1/81, 2/81 and 3/81)

Article "SUPERPICO", (CQ Electronics 10/81)

Download of the material provided by Stefano:
https://retromagazine.net/download/RM32_Pico.zip

(Note by Stefano: Mastermind for SDK-85, I think it should be renamed to mastermind.a15 if you want to use it with MAME from version 2019 onwards)

EnigmA Story 2nd episode: first steps and first meetings

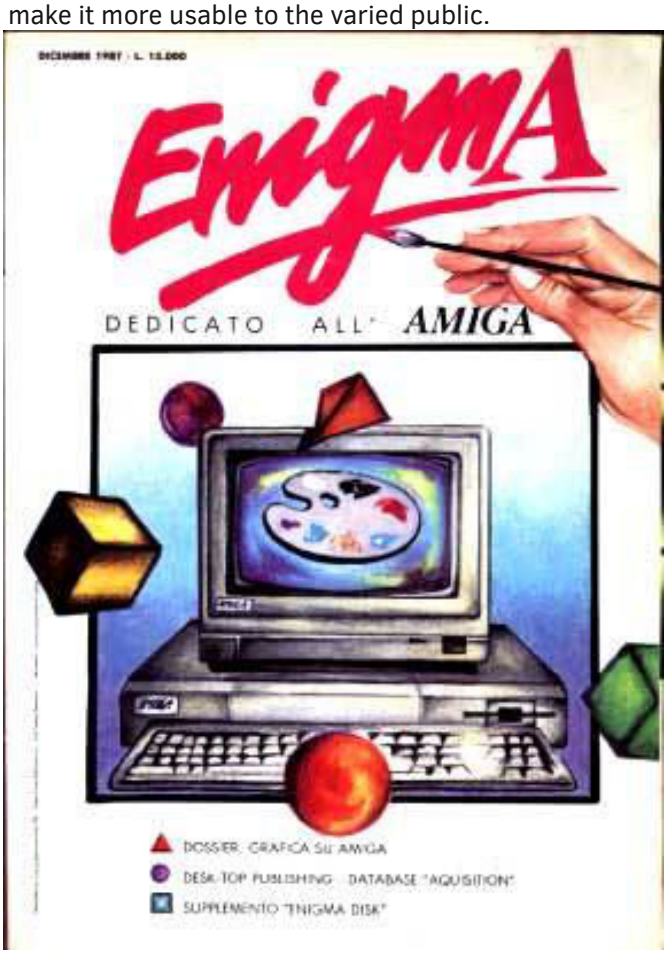
by Michele Iurillo

Once I entered that editorial office, I had the pleasure of meeting personally all those who were behind it.

Unique characters to whom I owe a lot and with whom I spent fantastic years between work and crazy laughter.

The two partners: the already announced Maverick and Gianluigi Zanfrognini the managing director, a great publisher between dentistry and journalism.

There was also Sofia the very good “graphic queen of Xpress” and woman with easy Sardinian monosyllables (no/yes) (in Sardinia they are a few words). The brilliant Paolo Sciortino nicknamed by me "Shorty" but being tall we could also call him "Long" (things that only we programmers of disused languages can understand) he was the only real "journalist" with a lot of desire to write and a certain frustration to be in that editorial office and not in via solferino.
He was famous for opening articles with Scribble! and directly set the CUT function and cut everything away to make it more usable to the varied public.



At first, especially in the first issue, the articles were translated from English by the mother magazine, but already from the second issue things changed.

The permanent body included other subjects, the best known obviously Maurizio Feletto for me a brother.

Nicknamed “SuperFellets” because of his ability to concentrate, he could start a riot in the street, or hear an explosion but he focused on his Amiga 500 with his elbow resting on a 20MB hard drive (Sigh!) did not even move an eyebrow.

SuperFellets coordinated the entire editorial staff and managed the collaborators. I started doing little things and under his careful guidance I took my first steps into the world of journalism.

In addition to Zanfrognini called Giangi, and Greissing called Maverick, there was also a character of the most incredible... Gegio! Giangi's Brother is a real office matador, unpredictable, always in a good mood, something crazy but you couldn't resist his Gags. Then we had a delivery guy, and I helped him out.

He was nicknamed "Zanza", a half-breadmaker who was also always cheerful.

Think that in the old newsroom of Via Sassoferrato before EnigmA there were some Iranians who sold carpets and listened to the Koran with a ball sipping tea... (they ordered from my father's bar).

Hassan the owner had also appeared in the various local televisions selling carpets... from carpets to magazines the pace is not so short in the basement where the machines to copy diskettes went to ball there was still a stale oriental carpet smell.

RETROMAGAZINE'S BOWLS CLUB

by Mic The Biker Novarina

Summer has its foot pressed on the accelerator; it does not want to give up the gas: it is hot, as is right in this part of year. Even in the morning, when theoretically you should breathe a little, it's like being in an oven or, at best, having a hairdryer pointed at 20 centimeters from the face.

The editorial work continues, despite the fact that the climatic conditions are more to take a bath. The congregation of an editorial office is strange: there are very different people who coexist, that change from particular to bizarre, many heads and a thousand thoughts. The nice thing is that we all converge towards the same goal, namely to express our passions on paper (in this case virtual). In the collective imagination, an editorial group is often seen as a group of super-professional people who talk to each other using hyper-technical terms, unrolling mileage lists, dressed in long white gowns and wearing round glasses. However, in reality, an editorial office is more like a bowls club: every hour there is always someone who is talking to themselves, another came to sit at the table, trying to understand what he says. In the meantime, a guy drops the bomb, starting some discussions that take a thousand turns and intertwine in multiple scenarios.

Can you see how the scenario changes in an instant? We are dressed with tank top and a straw hat on our heads, a glass of red wine in our hand and always ready to "drop the ace", because in any case we have the experience and the cards in our hands are good. Under the shade of the pergola even the summer heat is less torrid and induces me to start talking alone, thinking aloud about some tasty content to be included in the next issue of the magazine. In that moment, Nith comes out of the club bar, he sits next to me and engages in the speech. We're talking about arcade games room. There's nothing more like them. Some images take us back in time; Nith asserts thoughtfully that in Emilia Romagna there is very little left. I pour some wine in our two glasses, as if I wanted to wet the throat burned by the heat, and I say that even in Jesolo there is almost nothing. A friend, who has always had a games room, is pulling out the old golden pieces: Pac Man, Out Run, Space Invaders.

All the original stuff, you know? And he told me that there is a massive return in search of video games of the past, and not only by the over 40s: kids that enter and ask him about old games. I say kids, do you realize? Those grown up with bread and playstation! Suddenly our attention is drawn to the noise of an old plastic chair crawling in the gravel: it's Alberto, who has taken the same and sits with us at the table. "Crazy!" is his first word. But he doesn't stop here, he takes his glass, fills it up and tells us that there's a reason why some people ask for old games. A cicada sing is the only audible sound, there's silence

everywhere. His theory is flawless: although new games have superior graphics and sound, it takes half an hour to set them up. Space Invaders need no explanation: Joystick, fire button and go. Did you hear that too? This is the sound of the bomb, the decisively winning ace: the argument is the right one! I immediately engage by saying that I have my own theory: people get to a point where realize that the super realism of modern games is stressful.

The old games reveal the desire to get out, for a while, from reality and launch into a clearly "fake" dimension, where you can unplug, detach from the routines of real life and sink into a world where anything is possible. Nith sips his glass and nods decisively, agreeing with my theory. Alberto makes it easier: for him the old games are simply easier to use. In that moment we hear screaming from inside the bar of the bowls club. The voice said that a table pong with two potentiometers and two friends will never be able to exceed the online of a Red Dead Redemption 2 or a Grand Theft Auto V.

Alberto winces for a while, and then he answered that in his opinion the simplicity and technological genius of some games must be highlighted, things that allows us to appreciate the progress made towards a more engaging realism. I drain yet another glass before saying my own, that is today's super realism is fantastic, incredible, almost suggestive, but when I put Out Run I systematically send to hell everything. Today's adventures, so immersive, are authentic masterpieces; but then I put on The Last Ninja and I immediately forget them! The photo-realism of modern football games and the perfect animations are demolished by the dynamics of Kick Off or Sensible Soccer. I raise my voice, so that everyone can hear me, to say that I do not like to play online: I hate not having the second player by my side to spit on him eventually. Alberto takes the tone back to a higher level, asserting that these reflections of mine should also be made by software houses. It is the question that becomes important: to what extent does a player like this hyper-realism? Is it not more convenient to divert efforts towards a better graphic fluidity and colors, on a compelling plot, on the characterization of the protagonist towards whom to identify for half an hour? The theme is warm, if possible more than the torrid weather of this August afternoon. Nith agrees, adding that software houses push for hyper-realism because the market demands it. Not only the graphics or the game system have changed: the player has changed and the way of approaching the product... Fortunately there are indie houses that still develop games focusing on gameplay.

In that moment, Alberto has a wrinkled forehead and a doubtful expression, and, wiping the sweat from his neck, he says that he is always suspicious when he hears "the market asks us". How much is true or self-referential? I mean, people are practically forced to buy or want certain things! All I can do is nod, in agreement with these speeches, as I start to fill the empty glasses again, after having gone to get a new bottle. Nith stares at the horizon, as if searching for answers. He holds the glass softly in his hand and, while the eyes become smaller due to the strong light, he asserts disconsolate that the market is made of few kinds. Fps, Jrpg, Metroidvania, adventures in Last of Us style: this is the current market, whether on PS5 or on Xbox S or PC. People are forced, but they don't know the difference: it was like that even in the old days, the market wanted beat'em up and Doom style games and people were trimmed with this rubbish. I take cigarette long puff, as I think of these words and, with a fixed look on the floor, say that it's not okay, that it's all too limited.

Let's ask ourselves why there is a return to the old games and new ones for old machines are programmed, made in a divine way. In the end there are also those who want to play a good Shoot em Up! Nith smiles slyly as he tells me that this return to bombing is for the old players who, fortunately, have educated the new generations, or it is thanks to decent game designers who develop games like Mario Rabbids, games that are based on gameplay. The three of us look each other in the eye as we hear the buzz coming from the bar inside the bush: are the other guys who are either playing something or fixing some old Amiga recovered from some dump. Someone shouts, "What are you doing out there? You've been talking for half an hour! At least give us a story."

In that while Nith pats me on the shoulder, telling me that this return takes place with small numbers and luckily it happens. But video game market is made by players who play Fifa, Fortnite and so on. These are not his theories, they are the words of Ubisoft Italia guys, who find confirmation with those of Takahiro, one who works for a Japanese major. We get up from the chair while the sun burns our skin. On our faces the smile of those who know that they have built something beautiful, that they have given space to their dreams and that they continue to do so, obviously out of pure passion. The new meets the old one, I put my hand in a pocket and I take out a virtual coin: there is the Out Run cabin that is waiting for me at the bar.

Bunker - A short story about a pirate tool authorship

by David La Monaca

In the previous issue (31-IT, 09-EN) of RetroMagazine World we published an interview with Pierluigi Fresia, also known as the pirate group (PierSoft) active in the Commodore 64 scene in Italy and Europe as an "unofficial dealer" of games and software from the mid-80s onwards. The interview received quite a good feedback by the readers and shed some objective light on the events of programmers, enthusiasts and pirates of the first hour, when home computers first made their appearance on the European consumer market. The story of PierSoft is a bit like that of other so-called "pirate" groups that, exploiting a legislative loophole in Italy's laws about copyright on producing, duplicating and distributing software at least until the end of 1992, formed proper organizations dedicated to importing, "protecting" and reselling games on tape and diskette, pursuing and realizing profits and practically acting publicly as normal companies.

In addition to these spontaneous groups, as in the case of PierSoft/2703, some publishing companies that were completely legal and normally dedicated to distributing magazines in newsstands (a widespread network throughout Italy) sniffed out the business and began to produce periodicals with a tape (or, later, a floppy disk) included, full of new and unprotected games for the many home computers that at the time had conquered the hearts of Italian consumers. These packages were sold in large quantities in newsstands at affordable prices (with values related to the present from 10 to 20€, averagely) and the games distributed featured different names from the original and largely "Italianized" as well as the texts and labels inside them (SCORE became "PUNTI", PLAYER 1 became "GIOCATORE 1", GAME OVER became "FINE GIOCO", and so on). These de facto illegal distributors could not be easily prosecuted, as they were collecting

Fig. 1 - Bunker in action

games and programs from the groups that were responsible for buying the originals, removing the protection and releasing the pirated version on the market. Sometimes they bought them by making a commercial agreement with underground groups and then sold them through a newsstand compilation. It was a very rich market (and partly tax-free) considering the big number of periodicals, the sale price to the end user, the widespread distribution and the number of years in which these companies have moved practically undisturbed. If we think that even many computer stores had organized themselves with lists and backrooms ready to make copies of cassettes and floppy disks, then it becomes easy to understand what the real dimensions of piracy were in Italy and, with the necessary proportions, also in the rest of Europe and in the USA.

In an organization such as the one set up by PierSoft and many others (not only in Italy, of course), the roles of the its members were very clear and defined based on their technical or "managerial" skills. The real stars were obviously those (very few at the beginning) who knew the hardware machines very well. They also could juggle effectively with the machine language, the assembly and the BASIC to remove the copy protections that after some time the software houses had begun to insert in their games and programs. But they also needed more supportive figures for the purchase of the original games and the rapid distribution of copies. And "commercial" minds were also needed to organize the copying machine and maximize profits. These, as confirmed by PierSoft himself, played the role most exposed to the law, risking in person, aware of the substantial unlawfulness of the actions of the group.

However, we must also note that some of the members of the "pirate" groups were often good hackers/coders. In those years they laid the foundations for a new reality, a movement all based on the use of computers and software: the so-called "scene" (from "computer scenes", the expression most used by underground groups in Germany, Scandinavia and the United Kingdom). In the daily events of protection and copying of software on magnetic media and of the manuals of a program, small and large stories are inserted that closely concern these programmers often self-taught or formed in very small groups around one or more machines of the 80s.

*The brief story that we want to summarize here to bring to light and your attention is the one related to the disputed authorship of a software, initially created by a coder/pirate

Fig. 2 - Author's signature on Bunker

of an Italian group. We mentioned this tool in the interview with PierSoft. In fact, to be precise, it was he himself who mentioned it when, in response to our question about how the distribution of the copied diskettes worked, he replied that even at a certain point the pirate groups had set about protecting their copies of the diskettes deprived of the original protection. They did this evidently to prevent those who bought the copy from them from then making a thousand more for friends and relatives, using a simple copier, since by now the game or program was without the original protection. One of the most used software at some point between 1985 and 1987 was called Bunker, according to many a great software tool, probably the best. PierSoft cited it as a product coming out of the hands of the main coder of his group at the time, known as nickname 2703. PierSoft added that after a while they stopped using the protection offered by Bunker due to a hardware problem that could occur with Commodore's 1541 floppy drives or with clone disk drives that had meanwhile conquered a slice of the market. In fact, when the protection triggered by the tool verified the presence of a copy of the "original copy" provided by the group, the software sent the head of the drive to hit repeatedly towards the end of the stroke (or towards the outside, track 0). This, according to reports, could even permanently damage the floppy drive, making it unusable. Considering the costs of a 1541 floppy drive back then, the economic damage could really create a serious problem for end users.

A friend of RetroMagazine World, as well as an expert and disseminator convinced of retrocomputing, Andrea Pachetti, commenting positively on the interview in a Facebook post, reported to us the problem of the paternity of the Bunker protection software. The memories of PierSoft are not wrong, as we will see later, because at a certain point this software was used by practically all the pirate groups of the time and each of them entered it with a monitor and only modified it in the presentation writings or even improved it with new functions or removing small and large bugs. But in fact, the tool originally created by 2703 and that "many disasters" and many problems had created in PierSoft/2703 with a few dozen users who had found the read/write head of their drive practically destroyed, was called The Wizard, a very valid program but with this drawback definitely not recent. He confirms this and recalls it in a rather spartan interview MS, a member of the PierSoft/2703 group (see references). At the time another program for the protection of copies of games was very popular and appreciated, The Sentry, released by the MFFC group in Padua. Bunker instead (we have reconstructed its real authorship thanks to some input from Andrea Pachetti and other research on the few documents and direct testimonies found in forums and websites), was conceived and programmed by a coder from Livorno, member or external collaborator of the Tuscan group Fanta-Soft based in Pistoia. For details, please refer to the references found in the short bibliography of this article.

There is a lot of detailed information that allows us to reconstruct with good approximation the history of this protection tool that, given the skill and abilities of the programmer, was actually a complex object and included a kind of language to give the games a more or less complex protection to overcome. In all probability, the different protection modes offered by Bunker were soon overtaken by the techniques devised by other coders of rival groups and competitors of the C64 scene. The same groups later largely renounced to protect the copies of the games to which they had removed the original protection, especially for the technical inconveniences that could occur because of the magnetic supports not always of good quality and for the numerous complaints of the buyers of the pirated games, who often could not use the copies produced in such a massive way and without tests of actual operation. After some time, the hardware cartridges arrived on the market from Germany and the United Kingdom that made it even easier to make copies of the programs with key tools such as freezing memory

Fig. 3 - MFFC Group Sentry 1.0

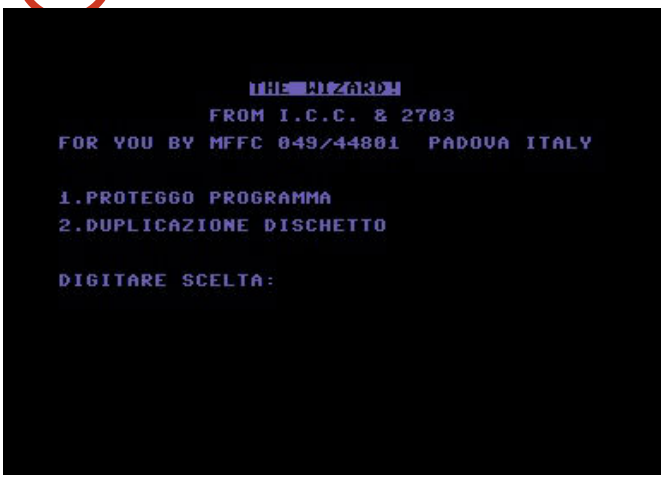


Fig. 4 - The Wizard from PierSoft/2703 group

and the monitor for assembly and machine language. The task of crackers became even easier even if for a long time the programmers and software houses on the one hand and the "pirates" of the most famous groups on the other have struggled to overcome each other.

Bunker was also a "commercial" program in the sense that it was sold by Fanta-Soft to other groups or users who wanted to impose a protection on their software and, according to its creator, a few hundred copies were actually placed on the market at a price not exactly low for the time (Lit. 80,000, the equivalent of about 105 euros today). But obviously there was no shortage of "cracked" copies of Bunker. Of its many versions released over time from its author's keyboard, some were unprotected and modified in the home screens and credits by rival groups (e.g. ICC and NIWA) of the Italian and foreign scene. And some have clumsily forgotten to remove from the code also the PET-ASCII traces (fig. 2) that reported the authorship of the tool directly in the arms of its true author.

In conclusion, I believe that we should give credit to the original creator and programmer of Bunker quoting below a speech he made a few years ago in the forum of ready64.org, in which he himself comes out in the open and presents himself to the retro community, officially taking responsibility for his production as a cracker and coder. Hopefully it won't hurt if it shows up here on RMW. For us retrocomputing enthusiasts, curiosities like these represent real gems to continue exploring and discovering the countless small pieces of the history of the spread of computers in our country.

“Hello everyone, I have just signed up [for the ready64 forum, NDA] to simply say hello and offer sincere congratulations to all of you. I discovered this site by chance half anhour ago and I was amazed to see that there are still hundreds of people still passionate about the C64. In fact, a lot of good memories for me too!!!
I am probably not welcome in the forum because - I introduce myself - my name is Luca and I am (I was) the owner of the Fantasoft of Livorno (and Pistoia, let's say from the point of view of the "market"), that is one of the biggest cialtroni/pirates on the scene - haha. Now after more than twentyyears I don't remember all the details but it was a blast to always be at war with other groups like Niwa in Milan, etc. to present new games first.

Personally, while the other half of Fanta-Soft (Fantoni di Pistoia) was in charge of "marketing" and distribution, I was the relatively shadowy one who provided for the software to arrive from abroad, possibly disrupting them, adding the hated FantaSoft intro and sending everything to Pistoia for... distribution. We got to the point that I wrote a very complicated protection software called Bunker that cost me so many of those hours at the C64 that I probably now wear glasses for that reason!"

Acknowledgements
For the writing of this article, our thanks go to Andrea Pachetti, editor of the blog Quattro Bit and to those endless mines of resources and information that respond to the name of READY64, CSDB and Edicola 8-Bit. We would also like to mention the always precise and objective "culture of the subject" iAN CooG, for many years very active and a reference point in the C64 scene.

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Bunker 2.1 - https://csdb.dk/release/?id=184329
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A bit of rarity

(rummaging here and there)

Datassette.org - Brazilian retrocomputing

by Alberto Apostolo

A few weeks ago, our Director Francesco Fiorentini discovered that the Brazilian portal Datassette.org is mirroring the English edition of RetroMagazine World.

The portal (detail in Fig.1) is a repository of documentation related to computers and game consoles of the past.

Of course, the main focus is on what has been published in Brazil in past years, but you can also find publications from other nations.

A few months the portal changed to a new layout, easy to use (even by those who do not know Portuguese).
Facebook login is allowed (but most of the material is available as a regular web site).

The sections (Books, Manuals, Magazines, etc.) have all been organized to easily access the topic and the contents for our desired machine.

In addition, there is also the subdivision by country where everyone can find contents written in their own language (Fig.2).
Datassette.org has also its Facebook page with its own profile.

We believe that this project made in Brazil deserves to be known and disseminated to the public.

If you have a bit of time, please link to the the following URL:

https://datassette.org

Fig.1

Fig.2

Flash News

On page 27 of RetroMagazineWorld #31 ITA it was written that Prof. Ugo Montanari had passed away in 2008.

It is not true, his colleagues have assured us that he is very well and the Editors apologize to the person concerned.

The English edition of RetroMagazineWorld #9 ENG has been published correctly without this misprint!

Thunderflash by Seep

by Mic the Biker Novarina

It's always a pleasure to play and review a Seep video game. I already know the boys very well: I was lucky enough to play that masterpiece by the name of Katana Soul, a game that made them known to me. This independent Italian team is very clear about what retro gaming is and knows how to make it really well: Sergio and Enrico Giansoldati know what they are doing!

I'll say it right away, for the avoidance of doubt: Thunderflash is fantastic. An assumption is however mandatory: I am always been a fan of games such as Commando or Ikari Warriors, and this last title is part of my gaming adolescence. Thunderflash is a tribute to it, with a little bit of Commando inside. The result is a "run and gun" game of older times, the kind of games that are no longer done today: the very ignorant shoot em up who had in Metal Slug their supreme example.

The graphic is an absolute tribute to the 80s and 90s. It was a golden age where software houses and programmers, in synergy, managed to create real masterpieces, which came to our times with their appeal intact. The timeless charm of what today we call pixel art. Well, Thunderflash has a great taste in it, a graphic that makes you jump right into those years. Everything has been programmed with that purpose: the pixel effect of the crt monitor is amazing. The background have that retro taste in the redundancy of some blocks. That's right, it has to be! The sprites have the needed frame rate. Not one more, not one less.

Purpose of the game

The purpose of the game is to shoot, destroy and raze to the ground five stages that are divided in five sub levels. Everything is logically full of pathos and love as only shooting like a fool can give. You have to hunt down the fearsome terrorist organization called Bloody Wolves: those who are afraid to die may return to play modern games, all composed of graphics and movies. To get rid of these villains we will have to face, in addition to enemies with an easy trigger, also traps of various kinds.

The beginning of the game brought me back to the legendary Ikari Warriors but faced with the typical Commando's speed. The mix is initially unsettling because my subconscious led me to an approach in Ikari style, more reasoned even in the middle of a bullet rain. No, here you quickly understand that you have to act in a pure Commando style, faster than the brain can think! Scrolling environments change from time to time: vertical scrolling sessions alternate with horizontal scrolling sessions. That's a good idea. This gives a great dynamism to the whole.

You can play alone but the top is the two player mode, side by side, not the cold and boring online collaboration: here you spit and sweat together! The men on screen are

called Stan and Rock. Initially they used a single-shot rifle and were equipped with three bombs: here too Ikari warriors made school. Along the way we can find bonus bins: by shooting them we can have access to upgrades. But beware, some may explode and can even be lethal. If we don't blow up, we can have access to extra health, but over all to other weapons. When you play these games the firepower is never too much. The sequence and type of weapon enhancement reminded me the first Metal Slug: we have flamethrowers, triple shot and more powerful rifles.

Be careful, they're not infinite. They don't last until we're killed, these powerful weapons are long-lasting and so put the dolls down, you'll play with them later. As long as you have these power up, you just have to destroy with more ferocity than before. Stuff to make Rambo looks like a more muscular Mary Poppins. In the game we will have to deal with some obstacles. Personally I found the mines particularly annoying: in the action chaos sometimes I did not notice I was going over it. The Other players near me did, hearing my blasphemies. The difficulty is high but nothing similar to the old Run and Gun. Here we remain in reasonable average chaos. Those who went on with Ikari Warriors immediately understand what I mean: they could not even manage the delirium of on-screen shots.

Wisely in Thunderflash you can add lives with a system similar to the Coin Op credits. A great advantage of Thunderflash is the possibility of starting a new game from the last level reached, avoiding those hysterical crises with burrs at the mouth typical of having to start again. There are two different modes in the game. One is call Survival: specifically, we must resist the waves of enemies. The more we resist, the greater our score will be. The second mode is Boss Rush: in this one, you face the mega bosses at the end of the level in succession, the right mode for those who want to make a trip to the neurologist. The game includes two different finals. I know because I read it and not because of it, I admit it.

Last but not least, the audio compartment of the game. You know I'm a chip tune fan, so I always try to go further. The songs are well made, nothing to object to. For my ears, there's no trend to emulate the output sound of any chipset. It is not a criticism at all, but it would have been the best trying to simulate a set of sounds typical of those years, perhaps a FM synthesis. However, here we fall into personal taste.

Biker Considerations

What can I say, my friends. If you arrived so far to read it, is because you like this kind of games, and if you like them do not hesitate to buy Thunderflash. It can be the 4.90 better-spent Euro for a long time now. Five levels and five under stages represent a challenge that is not impossible. We always remember that the old coin ops were not as a whole long to finish. They were difficult, almost impossible. This made us perceive them as infinite. However, I repeat, if you are here to read it is also because you have the “boxes” full of the infinite never-ending open world games. It’s a pity that's missing the words "insert coin". On Thunderflash it wouldn't have disfigured!

ListAmiga - THE 5(+1) GAMES TO PLAY IN DOUBLE

by Giuseppe Rinella

Welcome back dear brothers and sisters raised like me by Mother Commodore, who has given us so much joy and so much love.
This month I propose another beautiful themed ListAmiga, which never hurts and we like so much (I hope).

Summer is over, while I'm writing it's shooting its last bullets, then autumn will come and then school, work and everything.
But our dear old friend immediately brings us back to the days of our childhood, when Summer meant three months of vacation, and a large part of these were spent in hours and hours of sweaty games with friends.

Starting from this association, taking a big sigh in memory of the good old days, I want to propose:

THE 5(+1) GAMES TO PLAY IN DOUBLE

First of all, why is "5(+1)" and not "6"? Answer: because I like it better!
Going to the point, I wanted to offer you rather different games to ensure a certain variety, in some titles we clash and in others we help each other, so as to alternate the desire to humiliate our joystick partner, to the need to hug him tightly once our mission is successfully completed.
There are so many titles to have fun with, I always invite you to come and visit us on our social channels to tell us your favorites.
Let's go then!

SPEEDBALL 2

Also included in the list of the last issue, considered by those who write among the best Amiga titles ever.
I'd probably put him on any list, including the best driving games.
The jewel of Bitmap Brother is, from every point of view, a marvel, playing in single player is challenging and exciting, it does not have a smudge that is one.
But it is when we have player two next to us that the fun touches the apocalypse.
Fast, frantic, without a moment to breath.
Each game lasts 90 seconds that leave no room for tactics or anything, you just think of running towards the opponent's goal trying not to get stretched out.
Ways to get your opponent to end up with his face on the

cold metal floor, there are as many as you want.
It goes from the simple as lethal slipped, to the possibility of turning the ball into a real weapon to be thrown against the opponents doing him a lot of harm, up to the various power ups scattered on the field.
Among these I mention my favorite ever, that is the immobilization of all opponents. Yes, it allows us to run undisturbed to score a point, but who has never passed the ball to an immobile opponent, only to be able to hurt him with a direct slip on the shins, with consequent laughter in the face of the unfortunate opponent on duty?
Obviously, those who score the most points win, but it is not only by scoring in the opposing goal that we can accumulate points. The ways to do this are many and varied, I will not list all of them, but few things give satisfaction as fierce on a player until he leaves the field, wounded and suffering.
In fact, every player has an energy bar, seeing one particularly damaged it will be our duty (and I emphasize DUTY) to hit him with surgical precision, and then see on his face the portrait of pain, before it is taken off the field by the robot racks.
It would already be fun like that, but if we think this is going to make us score as many points as if we scored, you tell me why we shouldn't?
It's things like this that put a strain on friendship.
All this gives great satisfaction, a certain enjoyment and above all made fun of our playmate as if it were raining.
The short duration of each meeting means that the phrase "come on, another one!" is pronounced hundreds of times before you've had enough.

DYNABLASTER

Conversion of Bomberman released in 1990 for PC Engine, I never knew why the title changed but it is not so fundamental.

Dynablaster is a fixed pattern arcade, PacMan style to be sure.

Actually not so fixed, in the sense that the levels will become more and more extensive as we continue in our adventure, thus no longer occupying a single screen.

The levels are a kind of maze full of enemies of various kinds, where we can only move vertically or horizontally. The purpose of the game is to place bombs here and there to eliminate the aforementioned villains, as cute as they are lethal. All seasoned with power ups of various kinds that will make the protagonist (along with his bombs) increasingly efficient and destructive.

Be careful, however, we will have to clean up every level but always be careful of the bombs that ourselves have arranged with such care; their explosion in fact can pulverize us too.

Simple, fun and not easy at all.

But we are here to talk about double play, and that is where this title becomes something magnificent. Talking about "double" in fact is reductive, in Dynablaster can play up to five players at the same time. Of course, you need to have the adapter to use four joysticks, but if you have one, the fun is not quantifiable. The fifth player will have to settle for the keyboard, for a game like this not at all uncomfortable.

The mode that allows us to do all this is called "battle", that is, all against all, probably the first battle royale that is remembered.

We will then be able to throw ourselves into the fray together and unleash hell, spreading bombs everywhere as if there were no tomorrow, with the aim of blowing up our dear friends in shreds.

Always being careful not to let us get caught up in the destructive heat, however, which could make us explode thanks to one of our bombs, a possibility that is far from rare.

While you are slaughtering each other, try to peek at your playmates, you will see satisfied grins mixed with cursing. And a lot of fat laughter, ridiculing those who have just run dry, and then being destroyed a moment later, and more laughter and so on.

In short, Dynablaster is really fun, but played in fours is something exceptional, thanks also to an extremely simple gameplay, which really allows anyone to learn everything there is to know in no more than 30 seconds, and then explode (it is true to say) in loud laughter with our friends.

MICRO MACHINES

How adorable were the Micro Machines? I really liked them, but having all of them was practically impossible, even just having a good number greatly increased the possibility of a financial crack in your family.

To satisfy the desire to own all those tiny vehicles, here came the video game, on virtually any platform then existing, Amiga included.

It is a racing game with a view from above, where we will compete in different environments and with different vehicles. We'll take part in fastest Formula One races on a pool table, drive racing cars darting on the desk, fly helicopters flying in the garden and much more.

The game modes are two: the most classic, in which we will have to deal with three other participants to try to get first.

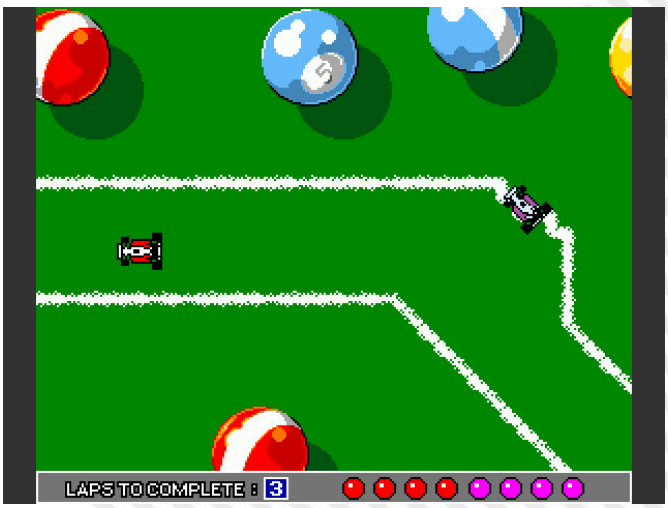
Or the one that brings out a bit of healthy meanness in us. It is a one-on-one challenge, the goal is to sow the opponent by making him "exit" from the screen.

It starts with 4 points per head, the goal is to get to 8, ending up out leads to the loss of a point in favor of the opponent.

To achieve this, in addition to exploiting the obstacles of all kinds along the track, we will soon end up giving powerful reports to those who dared to challenge us.

In double, this was the only mode available.

Bumping into our friend's vehicle on purpose, making it fly down from the pool table, and then squirting it out loud, is really a joke. As well as pushing him against that orange on the breakfast table, making him fall off his desk



or entangled in a bubble of glue.
It is worth mentioning the possibility of competing with tanks, very slow but equipped with powerful cannons, with which to destroy each other without mercy.
Each race can last from a few seconds to several very tense minutes, depending on the skill difference between us and our playmate.
Never as in this case it is essential to know the different tracks, especially for the fastest races, in which knowing in advance which obstacles to exploit, makes a great difference.
Technically quite essential, easy to play but not at all easy to master, some tracks in particular are really difficult.
Laughter is assured but be careful: physical revenge by your (ex?)friend, in the grip of a nervous breakdown due to yet another flight off the table, is not to be excluded.

MORTAL KOMBAT 2

The beat'em up on Amiga haven't had much luck for a long time.
Until three authentic masterpieces came out, practically at bursts: Shadow Fighter, Fightin' Spirit and Mortal Kombat 2.
Talking about double games without putting a beat'em up is almost a heresy, among the three I chose to suggest Mortal Kombat 2 (but to be clear, even the other two are very good) for a very simple reason: violence.
Delivering kicks and punches to our friends is fun (receiving them much less), but if we add a massive dose of violence, accompanied by rivers of blood and with that bit of sadism that does not hurt (ONLY in video games, I recommend it), everything becomes even more satisfying.
Let's also add one of the features that still makes the Mortal Kombat brand famous, that is, the possibility of being even harder on the opponent, once the match is won, by performing a Fatality.
You will understand that you come to something very close to pure poetry.
On this point we have to consider an aspect of no small importance: to know the Fatality, as well as all the other moves, you could not take our trusted smartphone and search, finding in a few seconds the list of what we needed.
The only ways to find out were buying trade magazines, which with a little luck would report all the moves, or word of mouth.
Knowing a fatality and jealously guarding all knowledge, despite the friend just eliminated begging you to reveal the arcane, added further satisfaction mixed with an authentic sense of omnipotence.
As mentioned, Mortal Kombat 2 on Amiga is a true masterpiece, a conversion that is almost miraculous. In fact, remove the almost.
Technically exceptional, but it is the fact to make this title perfectly playable having only one button available, which makes this game something epic.
If you want to be fierce about your friends, Mortal Kombat 2 is definitely for you.
You're probably going to find out that you're a bad person, more than you can possibly imagine, which you won't mind.

CHAOS ENGINE

Another Bitmap Brothers title, and what title.

I have always loved everything about this game, starting from the clamorous soundtrack, to move on to the graphic aspect with an excellent steampunk setting, ending up with a gameplay to find defects is a very difficult task.
For those who do not know (but I do not think it is possible), it is a shoot'em up with a view from above, we will have to choose our mercenary among the six available (including a priest, but in versions for Megadrive and Snes became a scientist, bah) and shoot everything that moves and wants to hurt us.
The peculiarity of Chaos Engine is that we will always play in pairs, even in single player, selecting a second character that will help us and that will be used by the computer. If we are in company, the choice will be our adventure companion, of course.
We are interested in this last option today.
It is therefore a game in which our friend will be an ally and not an opponent.

It's all gonna be "you on the right, me on the left," or "watch your back," or "leave me the coins."
This last sentence may be a reason for clashes, verbal or physical, with our playmate. The levels are in fact scattered with coins and power ups of various kinds. The coins will be particularly valuable, at the end of each level they will be spendable to enhance the skills of our alter ego.
You can therefore have a more collaborative attitude ("Take these you who have less") or be selfish and ruthless ("So you learn not to move!"), in the latter case the probability of beatings mixed with insults is quite high.
A healthy competition in short, but remember that the real bad guys remain others, do massacres of monsters, shoulder to shoulder with our trusted companion, is a source of great fun and just as much joy.
With that music there, even the level of exaltation flies very high.
Once the level is over, a very powerful high five starts, saying how against us there is none.
But at least a few more coins, though, you could have left me...

SENSITIVE WORLD OF SOCCER 96/97

Again, the same applies to Speedball 2, we are talking about a game that can easily appear in different lists that include the word "best" in the title.
Sensible World of Soccer is simply an essential game, unless you deeply hate soccer.
The 96/97 version was the latest official on Amiga as well as the best ever.
Can a soccer game be missing from a list of games with which to have fun in company?
Let's face it, we are still in Italy and, let's add, even fresh European champions, it is not really possible to do otherwise.
I could have indicated another title, there are some excellent ones on Amiga, starting with the great Kick Off 2, but also Goal! with which I spent several happy hours.
When it comes to video game soccer, Dino Dini is a sure thing.

Another game with which I have always had a lot of fun and for a long time, very different from those mentioned so far, is Sierra Soccer, although it is not at all flawless.
Manchester United Double is also a gem in my opinion.
I decided to suggest SWOS 96/97 especially for the customization possibilities it offers in the creation of different competitions.
We can create Cups, Tournaments and Championships, each with different options that make the possibilities of customization if not infinite, really numerous.
In addition to all this, the database of selectable teams is something resounding and unparalleled, allowing us to create incredible "themed" competitions.
Do you want to organize a cup with only Asian club teams? You can do that.
Or a championship with Central American teams? Do you prefer English Third Division lineups?
You can do all this, the only limit is your imagination.
Another interesting option, the possibility of playing the game or just being a coach. Deciding in the latter case, who to deploy, the module to be used, intervenes in a match in progress for possible replacements, however, making the computer play.
In short, with SWOS you can really create incredible competitions and open to a number of participants that will be very tiring to contain in one room.
Needless to say, the level of competition is so high that, in comparison, the World Cup (the real ones) is a piece of cake. :-)
Old issues that have remained unresolved for too long will be settled on the playing field, unexpected alliances will arise (other than biscuit Sweden - Denmark) in order to move on to the next round, outrageous rankings, humiliated mattress teams without any remorse.
The truth is that you would want to get on the street and ask anyone to take part in your championship.
Never as in this case can we say that the more we are the better it is!

This is my list of 5(+1) games to play absolutely in double, but there are many others as you well know, the quantity/quality of games that Amiga gave to us is really exciting.
So I renew my invitation again: come and visit us on our social channels and/or on our website and tell us what is your list of games to play in company until exhaustion!

Greetings and FOREVER AMIGA

ZORRO

by Christian Miglio

Greetings to all the friends of Retromagazine World, today your Elder will wear with you the moustache, hat and mask and will become Zorro! Follow us on this adventure!

Die Rückkehr des legendären Kreuzfahrers – der geschickt seinen Weg durch zwanzig mysteriöse, gefährliche Szenen fechtet!
Lieferbar für Commodore 64 & Atari
Zorro
Datasoft
U.S. Gold (Germany) Ltd., An der Gümpgesbrücke 22, D-4044 Kaarst 2, Holzbuttgen.
Tel. 02101/6 84 99 + 6 85 61. Telex: 17/2101 325 RUSH.

Zorro, you moth-eaten old cape!

"There on the dune, when the moon shines, our hero Zorro appears... Zorro, Zorro, Zorroooooooo he has a secret life, Zorro, Zorro, Zorroooooooo, his sign is the Z!"

This is the first acronym of the series "Zorro", produced by Walt Disney and first broadcast in the United States from October 10, 1957 to July 2, 1959, and for the first time in Italy, from April 14, 1969 to 17 (in the time slot of children's TV) in the broadcast "The Mickey Mouse Club", then rebroadcast in 1992 redoubled, restored and "colored" (the original series is in black and white). The series consists of 78 episodes lasting about 25 minutes each.

Zorro (whose name means "Fox" in Spanish) is a masked hero, an executioner and a skilled swordsman who appears in works set in the town of Los Angeles during the era of Spanish California (1769-1821).

And he's the protagonist of our review today.

El Zorro, from the great software house Datasoft

Datasoft was a video game developer and publisher founded in 1980 by Pat Ketchum. Datasoft was based in Chatsworth, a district of Los Angeles, and ported arcade video games to personal computers.

It developed and published video games for Apple II, Atari 8-bit, Atari ST, Amiga, Commodore 64, Personal computer and TRS-80 Color Computer.

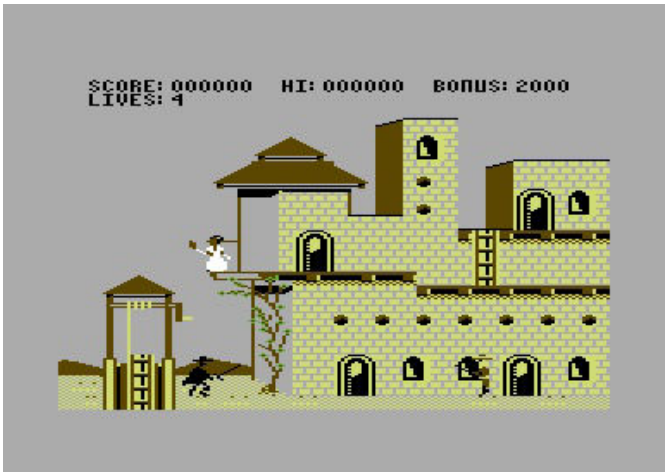
The company declared bankruptcy and was bought by two executives of the same Datasoft, Samuel L. Poole and Ted Hoffman, who renamed the company in Intellicreations. Intellicreations continued to distribute the video games developed by Datasoft until closing.

Among the most famous productions of Datasoft we can boast games such as Bruce Lee, Conan, Cosmic Relief (US version of Terramex), The Goonies, Pole Position, Mr Do!, Pooyan and Zaxxon, just to mention the most famous.

And finally the Z of Zorro at the tip of Joystick

Let's start our adventure, a few laps of tape or a nice load, 8,1 and we are catapulted into Zorro!

Zorro is a game developed by James Garon in 1985 and published by Datasoft, it is a single screen platformer genre, in the sense that the action does not scroll with a continuous screen like conveyor belt but as soon as our character reaches the bottom of the screen, we move on to the next screen.



This game has all the elements needed to get us into the role of the character, a kidnapped senorita, a bully soldier

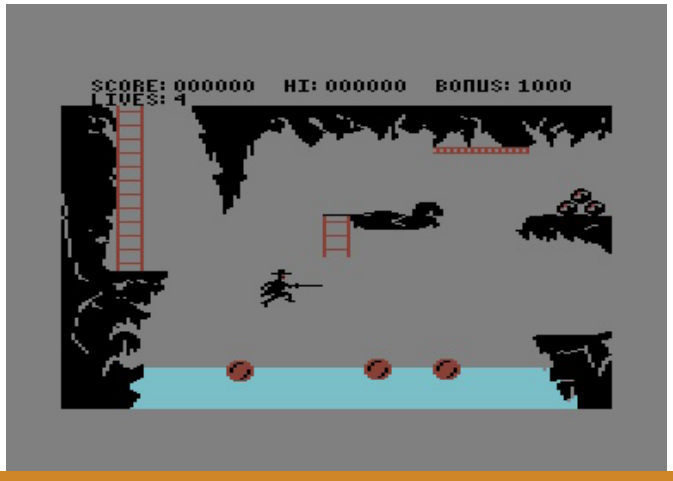
(Sergeant Garcia) but not very intelligent, soldiers at his service even less intelligent, arrested peasants and an impregnable fortress.
Already from the first screen of the game our senorita is kidnapped by Sergeant Garcia, not before dropping the handkerchief.
Zorro's main task will not only be to return her handkerchief as a true knight,but above all to free her from the claws of the evil warlord (but are we talking about the Sergeant Garcia that we know? Apparently so...).

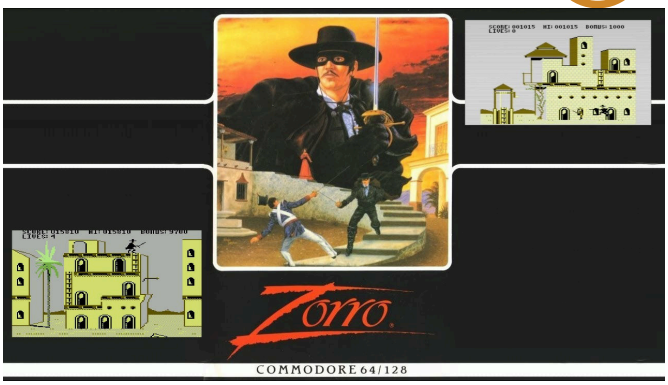
Zorro the gameplay
As for the gameplay of Zorro as well as the graphics, this game shows obvious similarities with The Goonies, Bruce Lee and Conan, although the gameplay here is expanded by the resolution of several puzzles.
To enter the enemy fortress you must procure three artifacts: the "Chalice of Honor", the "Horseshoe of Fortune" and the "Boot of Liveliness".
In order to obtain them all , Zorro must solve small puzzles by finding useful objects and must use them or combine them correctly.

One of the funniest puzzles to solve is the bottle of wine. Once you can pick it up, Zorro must be taken to the cellar where a drunken bandit is sitting.
After giving him the bottle of wine, the bandit falls asleep promptly after draining it, allowing Zorro to jump on his swollen belly and use it as a springboard to reach a previously inaccessible platform.
Our masked avenger can only carry one item at a time.
The artifacts, the Lady's handkerchief and the golden sacks don't count.

If Zorro finds himself forced to take another object, he will drop what he has in his hand at that moment.
The "puzzle" part in Zorro has a really predominant role, enough to be able to separate the merely enigmatic part from the combat part when facing an opponent.
Graphics and sound of the gentleman

As we said earlier this game is very similar to Conan or





The Goonies, and for the graphic part, Datasoft decided to use only a handful of colors from the impressive palette of the C64.
This, however, has – unlike the games previously mentioned – helped to create a certain atmospheric effect.
For example, when you reach the catacombs under the city, the colors change, but not the number, no more than 6 colors are ever used per screen although, in my humble opinion, wisely used.
Note that Zorro's complexion changes, depending on where he runs or jumps.

The background music is short and is repeated in loops. At first it does not attract attention in a negative way, but soon, as the game goes on, it gnaws at the player's psyche, so much so that it desires the moment when you place the second bell in its place and enter the catacombs.
Then and only then do you get rid of this penetrating music.
Alternatively, you can press the "S" key, although the sound effects by magic will disappear along with the music, except for the noise of the mythical Z during the fights.
Obviously, it was not only the color palette that was unknown to the developer, but also the impressive number of audio channels.

Zorro himself is a monochromatic sprite full of action ready to defend the good and fight for the innocent, able to run, jump, wield a sword and collect objects.

We will be able to reach the final screen of Zorro only after having successfully passed 20 screens of the game, in which in addition to the puzzles and having fought against different guards of Sergeant Garcia we will have to find the way through a maze of catacombs, perhaps one of the most difficult and frustrating parts of the game.

Zorro from California to Italy (and to the rest of the World)
In Italy Zorro arrived mainly with newsstands, precisely in the "GO GAMES" series where he had the name of Don Rodrigo and on "SPECIAL PROGRAM" with the title of El Salvador, instead on SUPER GAME 2000 he appears with the name of Masked Hero.

The Elder's Corner!!! He's here! Let's Rock!

THE GREAT GIANA SISTERS SE

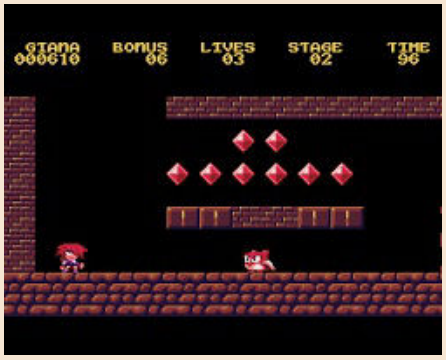
Year: 2016
Editor: PixelGlass/ Reimagine Games
Genre: Platform game
Platform: Amiga
Web site: https://pixelglass.org/#gianase

Giana Sisters is for Amiga as Mario is for Nintendo or Sonic is for SEGA. It's an iconic game with so much history inside. Giana is the most hated and loved platform ever created.
The original Giana Sisters was also made for Commodore 64, becoming the reference platform for entire generations of commodorians.

The Great Giana Sisters is one of the mythical games, a very popular game in the golden age of home computers. Nintendo in fact sued the team behind the original game Giana Sisters because of the similarities in the very first levels of the game stating that Giana Sisters was a copy of their game Super Mario Bros.
But this is history now. The same Nintendo on her DS will see the game arrive in 2009.
An improved AGA version of the game has been available for a while now. A version we're going to look at together. The requirements to work.

Giana Sisters SE
- 512 KB of free ChipMem (not total).
- Optionally, +890 KB to preload.
- 2.0 Kickstart.
- 2.3 MB of free HD space.

Special edition... these are the last letters next to the name of the game. This version is an unofficial hack of the original version for Amiga that replaces the entire visual aspect of the game. The new graphics by Giana Sisters SE are completely new or original remastered designs, while Giana and some enemies are directly inspired by the DS 2009 version of Giana Sisters . New animations have been implemented, a new graphic palette for the levels, some changes to the levels themselves, a new very nice intro, a new logo and new original sound effects.



This version of Giana Sisters SE is the first version of our new Reimagine Games label, which focuses on non-commercial ports, hacks and remakes. A remarkable task, I must say.

FINAL SCORE

» Gameplay 90%

The gameplay is always unique and in this version even improved. One of the best platformers for Amiga.

» Longevity 90%

Almost perfect! Almost because the difficulty level is the historical one of the original. It does not forgive mistakes. But it is not frustrating and you want to play it again and again and again...

Of course, purists will comment that the new graphics might look a little too similar to DS, but I also love this new style. It's a nice touch for this improved version of Jana! The enemies you kill stay on the screen after you kill them. You can kill enemies in Jana like Mario by jumping on them or shooting them. His Majesty Chris Hulsbech has not been set aside. The genius soundtrack is still here. Powerful and majestic as always and strong point of the original. The fact that they managed to keep the original sounds of the game, personally gives me a huge respect for Reimagine Games. The sounds and music of this game never seem to age. You notice that it is Giana Sisters when you hear the sounds of the game's music and sound effects, and that is how the iconic games should be remastered.

Platformer gameplay is very important. Giana Sisters SE has the same gameplay as the original with some small changes. Jumps are more fluid and joystick movements are more precise.

I tested the original and SE version side by side on my trusty Amiga 1200. What do you say this version comes out winning. Looks more like Super Mario World for SNES. It is also implemented the use of the second key in case you have a joypad.
Giana Sisters SE shows that Amiga as a platform for platform games is second to none.

The love that Pixelglass has put into this improved version is a lot and you can see it. It shows their dedication to the platform and it warms every heart that loves Jana. The game is released free of charge on the Pixelglass website. Run and unload it. What are you waiting for?

by **Carlo N. Del Mar Pirazzini**

The Great GIANA SISTERS
GIANA 000000 BONUS 01 LIVES 03 STAGE 01 TIME 59
Giana Sisters S.E.
GIANA 000000 BONUS 01 LIVES 03 STAGE 01 TIME 70

NEW GAME

ALEX KIDD 3

CURSE IN MIRACLE WORLD

Year: 2021
Editor: Yeti Bomar
Genre: Platform game
Platform: Sega Master System
Web site: https://yeti-bomar.blogspot.com/

Most users of the Sega Master System will remember with nostalgia the video games of Alex Kidd, once official Sega mascot scolded in 1991 with the debut of Sonic, who almost immediately took the role of official mascot of the company to try to compete against Mario.

Alex Kidd's first game, called Alex Kidd in Miracle World, was the childhood game of many users of the 8-bit Sega console, as it was included in the console's memory, which is why it became tremendously popular and loved.

For the Sega Master System there are 5 titles of the cute character: Miracle Word, Lost Stars, BMX Trial, High Tech World and Shinobi World.

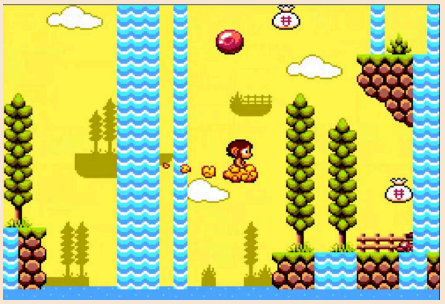
Subsequently, a single game from the Alex Kidd saga appeared for the Megadrive, Alex Kidd in Enchanted Castle, but on the 16-bit console of Sega but did not catch on as much as the 8-bit adventures and the character fell into oblivion relegated to a specific aspect as a secondary character in the games Sega Superstars Tennis and Sonic & Sega All-Stars Racing.

In 2012, a long development began by a user named Yéti Bomar (whom we greet and who has always kept us informed about this project, note by Nith).

This project was launched in the famous rom hacking and homebrew development forum called SMS power, one of the most active communities in the system.

Thanks to the development editor called KiddEd (an editor of the game Alex Kidd in Miracle World), Mr. Yeti started creating a new adventure by editing the original game from top to bottom creating a new game that he would call Alex Kidd 3 Curse in Miracle World.

Completing it was not at all easy and it took almost ten years of beta version until March 2021, when the full version we have in our hands arrived. A free version on the author's website that was also issued in physical copy (ultra limited).



The game is basically based on the style of Sega's monkey saga. Jump on platforms, collect bonuses, hit enemies, use particular items and challenge bosses.

Technically, the editor allows you to faithfully recreate the graphic style

and environments. All right and with that MASTER SYSTEM style that distinguishes different titles on this system (Sega blue is prevailing as a shade!).

If, like me, you love the saga, all you can do is test the game and swear. Just as in the first chapter, here too every mistake of jumping, every wrong collision will be punished with the death of the little one.

Forget the pity! Alex Kidd is a tough game, but one that keeps you glued to the screen. The previous titles were and so is this 3 "unofficial" title.

I love the Sega Master System scene in recent times, more alive than ever. Try it!

by **Carlo N. Del Mar Pirazzini**

FINAL SCORE

» Gameplay 80%

Classic control system: jump, punch. The levels are well designed.

» Longevity 70%

Alex Kidd punishes you. It's a game that's not too long, but at times it can make you curse at any known deity due to a punishing difficulty level.

Master System
ALEX KIDD3
CURSE IN MIRACLE WORLD
SEGA
YETI
TEC TOY
Alex Kidd deverá enfrentar o seu mais terrível inimigo de um passado distante. Após derrotar Janken – O Grande e Banshi, outro inimigo ainda mais poderoso ameaça o belo reino de Hananotani: Furyo o louco.
Daleda (The Lost Stars) estará lá para guiá-lo e você receberá a ajuda de Stella (The Lost Stars) e Naokoto (Shinobi World) sua namorada.
Você derrotará os capangas de Furyo, Heavy Metal Head, Fuck off Head and Yubitsume Head, na famosa batalha de pedra-papel-tesoura!
Encontre o seu mestre, St Nurari, que está desaparecido e quebre a maldição que assola a família real de onde você veio. Só você pode salvar Miracle World de uma vez por todas.
Modelo N° 042-021

DOREMI FANTASY

MILON NO DOKIDOKI DAIBOUKEN

Year: 1996
Editor: Hudson Soft
Genre: Platform game
Platform: Super Nintendo

If we take a look at the list of the 10 best platform games for Super Nintendo, we will most likely see Super Mario World and Yoshi's Island among the favorites occupying the top positions with the Donkey Kong Country series to follow them closely. Even this DoReMi Fantasy should be part of this list, but unfortunately the mysterious Hudson platform is unknown to the general public for just one simple reason. It was not distributed outside of Japan, which is a real shame as it easily rivals the aforementioned Nintendo platform and in a hypothetical ranking would be among the top positions.

The plot is routine. Damsel in distress, demon who abducts her and makes music and happiness disappear from Milon's world.

At this point the chubby little goblin will have to make his way through various levels, fight enemies, discover secrets, collect bonuses and face diabolical Bosses to save his beloved friend Aris and restore peace. During the game there are numerous movies that reveal more and more the plot, which adds a nice cartoon touch to the product.

For a 16-bit game, the graphics of DoReMi stand out. The characters, enemies and bosses have a great level of detail and the animations are impeccable and fluid. The icing on the cake, however, are the backgrounds, which really impress with their soft pastel color and give life to the game really giving the cartoon atmosphere that I mentioned just now.

The music of the game is used in an interesting way for a plaftorm. Often a musical score repeated in infinite loops is expected. Not so in DoReMI; instead Hudson Soft has tried the innovative approach of dissolving the music in favor of sound effects that alter the mood as the noise of the wind in some phases of the game. This adds a level of depth when combined with all the other accurate touches and works really well in building the game atmosphere.

None of this would matter if the game controls didn't respond and the level design was a disaster, but fortunately Hudson doesn't disappoint on this point either. Milon's control is intuitive and responsive.

There are some times when, faithful

to the protocol of platform games, you will have to make perfect pixel jumps, but it certainly does not compromise the final gameplay. There are some notable touches of game design also to curb some unreachable points.
Our main weapon in the game is a bubble blower that will allow us to trap enemies and launch them out of the screen in a very "Bubble Bobble" way. You can also stun them by bouncing on their heads. The game is also full of secret areas to find.
In conclusion, DoReMi is undoubtedly one of the best examples of platform games for Snes and stands up to the classics like Super Mario World. There is nothing to criticize in the game, I would say nothing.
Unique is the Japanese language (which does not hinder much) and its exit late and only on Japanese soil.

Highly recommended if you can retrieve the original cartridge or through emulation.

by **Carlo N. Del Mar Pirazzini**

FINAL SCORE

» Gameplay 90%
Compelling design and an intuitive control system mixed with a game full of secrets and bonuses.

» Longevity 90%
This is a good game. Not too difficult but will keep you engaged.

GUNBEE F-99

THE KIDNAPPING OF LADY AKIKO

Year: 1998
Editor: APC&TCP
Developer: Twin Eagles
Genre: Shoot'em up
Platform: Amiga

The planet of Valstyx is threatened by strange beasts and strange space machines, controlled by the vile Lord Khenmir.
This lunatic is looking for the five crystals possessed by Princess Akiko, crystals that will give him even greater power... The only one standing in Lord Khenmir's way is Kiara McGuire and his last instrument of destruction: the Gunbee F-99.
Well... short story, simple and linear. Nothing more or less.
Gunbee is basically a direct clone of the mythical Twinbee of Konami (released on different platforms and with different titles) also imitating it up to the layouts of the levels.

As in the original model, here too we will pilot a super deformed-style spaceship equipped with a glove that we will use to shoot down enemies. Like the most classic shooters, here too we can enhance our vehicle through the use of small bells that will be released by some clouds. If we continue to shoot these bells, they will change color and, for each color will correspond to an enhancement.

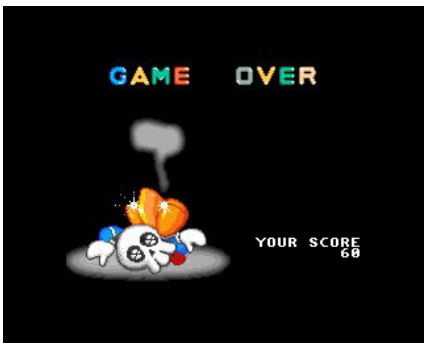
Gunbee F-99
Gunbee ist da! Schlüpfen Sie in die Rolle der schwerbewaffneten kleinen Biene und befreien Sie die holde Lady Akiko aus den Fängen des bösen Lords Khenmir. Dazu müssen Sie fünf spannende, im Japano-Comic-Stil gestaltete Welten durchfliegen um sich im Finale dem Obermotz persönlich zu stellen!
Here is Gunbee! Take over the part of the heavy armoured little bee and rescue the lonely Lady Akiko from the claws of the evil Lord Khenmir. For this, you have to fly your way through five exciting japanese-comic-style-levels to face the evil boss by yourself.
AGA Amiga, HD, 4 MByte Fast-RAM

To the classic shot was also added the bomb to hit the targets on the seabed.
It is a little-known game, released in the late 90s when the Amiga world was in full chaos.
There are two game modes: the Honey, that is, the training and the story mode, which after a good intro will make us start with the actual game.

Although the gameplay is the one seen in the Twinbee series, the intro is very reminiscent of the one seen in Turrican 3: Payment Day (or Mega Turrican). In fact, Kiara McGuire is a tribute to Bren McGuire of the Turrican series.

A well-developed game that resides on two diskettes (or two .adf files) and can be installed on HD via the handy personal installer.

I tested it on three cars. In emulation on WinUae spins that is a beauty, as well as on A1200 while on A500 slows down a little, but does not lose the charm and playability.
Pretty graphics and a very engaging sound are combined with good playability and a well calibrated level of difficulty.



A product to be recovered and that will soon be included among your favorite vertical shooters.

by **Carlo N. Del Mar Pirazzini**

FINAL SCORE

» Gameplay 90%
Well developed and with gameplay that comes from a truly amazing Konami series. Simple and intuitive.

» Longevity 80%
Not particularly long, but challenging and well balanced.

NEW GAME

1987 ESCAPE FROM BERLIN

Year: 2021
Developer: Code / GFX: José A González
Music: Nacisound
Editor: Own production
Genre: Graphic adventure
Platform: Amiga

In a retro apocalyptic universe, the city of Berlin has become a prison surrounded by a wall where thousands of prisoners live together in a chaotic and uncontrolled society.

A plane from a large computer company crashed into the city carrying security data. Our protagonist was sent to retrieve the data found on a floppy disk.

Explore, investigate and find the floppy to send data abroad and escape without being detected as an intruder.

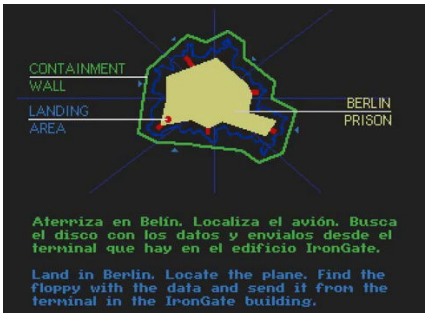
What a nice surprise! In fact, not really a surprise but a reunion. Initially the game was to be called " 2027 Escape to Berlin " and was developed in 2017 by the collective Amigawave immediately after the release of Retro Wars.

After some adventures and problems it finally sees the light in 2021 and with some graphic and game improvements.

Let's start by saying that it is a "point and click" graphic adventure of the old-fashioned ones. And we like that. The adventure is simple and linear and not too long but equipped with a good mechanics.

Compared to the first version, this edition features better graphics, some additional characters and a touch up to the bizarre screenplay.

The protagonist reminds us of the legendary "Jena" S.D. Bob Plissken in Super Deformed version. Everything about the game is pleasantly retro. The graphics, the menus, the narrative style.


CONTAINMENT WALL
LANDING AREA
BERLIN PRISON
Aterriza en Belín. Localiza el avión. Busca el disco con los datos y envialos desde el terminal que hay en el edificio IronGate.
Land in Berlin. Locate the plane. Find the floppy with the data and send it from the terminal in the IronGate building.

The game setup requires 1 mb of Ram Chip and 2.1 ROM to start. You can play it by installing it on hard disk through a convenient installer, but you can play it directly from a single disk (it is on an adf).

If you want to try the game in Italian you can retrieve it on number three of the magazine Passione Amiga (a greeting to the friends of Passione Amiga!!) or by contacting the developer directly via email.

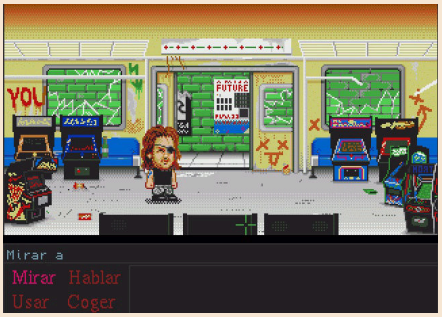
The game is localized in English, Spanish and (only for the Passione Amiga version) in Italian.

Definitively a playable and fun product.

Developer's email address:
JOJOCREATIVO@GMAIL.COM

by **Carlo Nithaiah Del Mar Pirazzini**

Rot Burger
¿Están buenas las hamburguesas de su establecimiento?
Mirar Hablar
Usar Coger
* ¿Vio el accidente de avión?
* ¿Están buenas las hamburguesas de su
* Perdone, me he confundido



FINAL SCORE

» Gameplay 85%
An old-fashioned point-and-click adventure with an absurd plot and enjoyable game mechanics.

» Longevity 80%
It's not endless. It's not super long. It's not super difficult. It's enjoyable.

UNHOLY NIGHT

THE DARKNESS HUNTER

Year: 2017
Editor: Blaze Pro/Foxbat Corp.
Genee: Beat 'em up
Platform: Super Nintendo

Unholy Night: The Darkness Hunter is a beat 'em up developed in 2017 by Foxbat Corp and published exclusively on Super Nintendo in Japan by Blaze Pro, in America by Retroism and in Europe by JoshProd.
Set in a dark version of our era, the game follows six fighters from three groups as they engage in a conflict to confront the vampire Katatonia, a creature that terrorized humanity in the Middle Ages, now resurrected to bring the world to destruction.
The game is a classic matchmaking game and uses a main three-button configuration with different combos (to make special moves) and four different game modes.
The selectable characters are six with a non-playable boss, divided into "Hunters" and "Darkness".
- Blaze: a teenage Dampyr who possesses both human and vampire abilities.
- Reinhardt: vampire hunter of the "Saint Knights", decidedly coriaceous
- Emily: another hunter very fast but physically not very gifted
- Cronos: vampire that aims to kill the Dampyr
- Wurzel: a werewolf from the "Wolfe" clan who continues to serve vampires against humans
- Nightmare: a very skilled succubus (very busty) full of combat combinations
- Katatonia: the final boss. Deadly but rather physically weak. He must be shot mercilessly and without getting caught in his deadly combination.

The game system is a hybrid between the classic 90s beatings and the new games based on energy storage and combination and, although it is not immediately intuitive, the four-button system +move set on joypad works.
It turned out to be the first game of its kind on Super Nintendo after 21 years from Street Fighter Alpha 2, despite the unfinished kickstarter campaign the publisher welcomed the opinion of fans of the genre and decided to continue publishing the finished product.

On a technical level we are faced with a product that does not reach who knows what peaks of graphics and animations, but that still lets itself be watched with pleasure.
You see a certain stylistic influence (and not only) of Capcom's Darkstalker and overall it's a game technically above sufficiency.
Beautiful music and sound effects.

Let's get to what we're interested in. Does the game hold? The Super Nintendo has been (and still is) the console with the highest number of titles of the same genre in history. Does this Unholy Night compare to historical titles?
No, definitely not, but not because it's not playable. The product is undoubtedly well made and enjoyable, the game system is well structured but it's damn easy.
Damn it!
The first stages you will overcome in a very short time and the real thread to twist you will only have in the last two opponents.

Too little!
Too few even playable characters. In 2021 you can not see only 6 characters. The situation gets a little longer if we talk about the possibility of playing against each other, but it is irrelevant for the purposes of voting.

This could be flown over if the game didn't cost $44.90. Certainly there is the packaging, the cartridge, the instruction booklet. Everything is very nice, but too expensive.

In 1992 it would have received a higher reception.

Now it is a product to test or for passionate lovers of Super Nintendo and beat'em up.
Bard's word!

by **Roberto "Il Bardo" Pirazzini**

FINAL SCORE

» Gameplay 80%
A well-developed product in controls and move set.

» Longevity 40%
Everything lasts very little. Poor A.I. of the opponents. You will finish it in just under an hour.

NEW GAME

DEMONS OF ASTEBORG

Year: 2021
Editor: Neofid Studios/Nindo
Genre: Action/Platform
Platform: Sega Megadrive (this article) – Also available on Nintendo Switch and Windows.

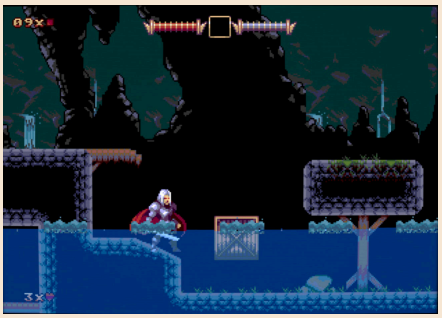
Demons of Asteborg is one of the most anticipated games by the Megadrive audience.
Very long gestation but it was worth it, because we are faced with a product of 10 and praise.
The game is a platformer of action, with metroidvania elements that pays homage to all the great sagas of the past, one of them being Konami's Castelvania.
In the game we will play the role of Gareth, a knight of the royal guard who must stem the forces of evil from invading Asteborg.

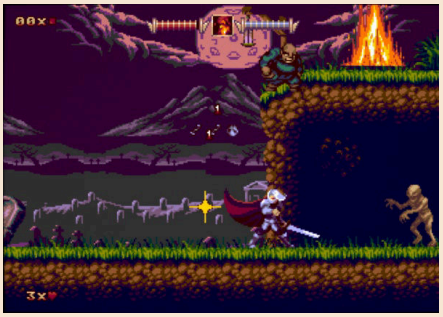
The gameplay is that of the classics of this genre, after a very short on-screen tutorial that will appear whenever it is necessary to use a particular maneuver with the joypad, you start for the adventure.
Our character can make attacks with the sword or with other objects, jump, crouch, roll and interact with some parts of the game.
The monsters present range from the most classic giant rats to horror-inspired monsters also famous in the classic Castelvania of Konami.
I must admit that the wait for this game has been well paid. Cartridge arrived in its packaging with a well-paged and well-groomed play manual.
The cartridge and region free and you can use it on any Megadrive possible.
In the cartridge there are maps and some very nice gadgets for real "fans".
Inserted the cartridge and gripped the joypad we find ourselves in front of a small graphic jewel. Animated very well and with really evocative backgrounds that show once again the qualities of the 16 bit Sega when used to the best and wisely.
The use of colors is also incredible

FINAL SCORE

» Gameplay 95%
An initial tutorial and you start slaughtering all the monsters that infest Asteborg with gusto!

» Longevity 95%
Not to be underestimated and to be approached with all the passion for this genre of games. It is worth it.





and I must admit that at present it ranks as one of the best palettes for the Sega machine.
Atmospheric audio is also perfect for this product.

The game does not invent anything new in the genre, but what it does it does well. Not too much inattention is allowed. An occasional player looking for 5 minutes of relaxation is not suitable for this game. Asteborg requires dedication to be tasted and completed. To understand every little secret and to better set up battles with bosses (some really complicated).
We are looking at a new masterpiece for Sega Megadrive that deserves to be purchased.

The game is also available in PC and SWITCH version and if you have these two platforms the advice is the same. Have a good exploration.
Bard's word!

by **Roberto "Il Bardo" Pirazzini** and **Carlo Nithaiah Del Mar Pirazzini**

VOLGARR THE VIKING

Year: 2020
Editor: Crazy viking studios
Genre: Action/Slasher
Patform: Sega Dreamcast

Recently, while visiting industry forums and some web pages, I discovered some very interesting news. Not only was the action/slasher game wickedly brutal Volgarr the Viking brought to Sega Dreamcast, but the developers declared that the version for this machine is completely free.

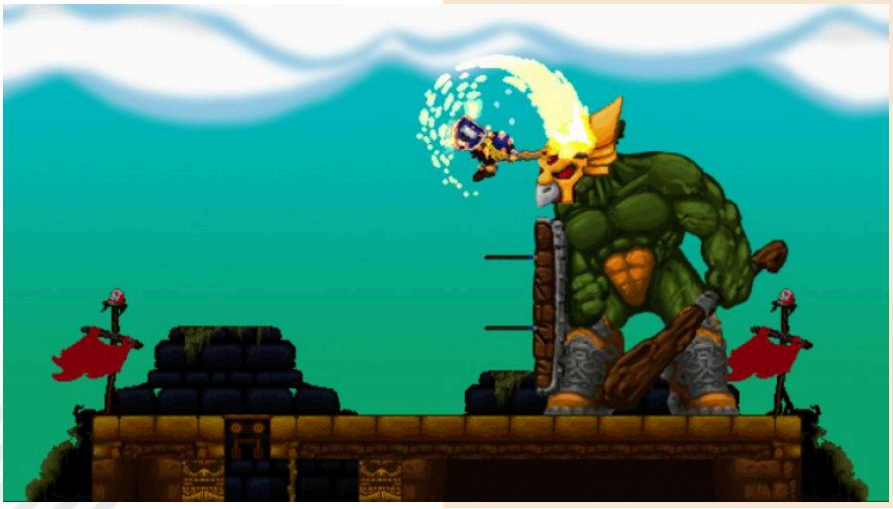
If you have a Dreamcast and an empty cd you can make a legitimate copy of a game that I personally consider a breath of fresh air totally arcade and that brings back the glories of Rastan, Golden Axe and Black Tiger in this 21st century made of tutorials and beautiful graphic adventures but without that healthy fun that the classics I mentioned gave us.

The controls are minimal but perfect. You jump, you use the sword and the spear, you stand with the shield and everything can be combined with the use of the pad, allowing our Viking to perform combos to continue in his adventure.

But be careful, a particular dose of control and concentration is required. If you make a mistake, our Volgarr will explode in a cloud of guts, bones and blood!

The game requires patience and passion to be mastered at its best, but those who are willing to dedicate time to our Viking hero will be rewarded in the Valhalla of the "arcade game" and the departures of the protagonist will make you scream "yet another game" while you launch into the paradise of video game warriors.

There are several reasons why this game is among the best of its kind and perhaps the best on Dreamcast. First of all; his enemies are in predetermined positions and rarely deviate from a designated pattern. This allows players to develop a level of cognitive memory as was the case within the Ghost n' Goblins franchise, for example, or in Contra, as well as in the more recent Dark Souls. Basically, you learn as you play and improve with every mistake, you will



eventually develop the reflexes you need to tackle the game's next challenges.
Second: The weapons of this game are a sword and a spear and you can use both during the game. The spear is particularly impressive thanks to the numerous functions and the throwing power, so much so that it is at the same level of strength as the sword. It is an absolutely first-rate weapon and not the usual weapon of support or panic.
Third: This game maintains the “hard” double jump seen in Super Ghouls'n Ghost on Super Nintendo. The design of the levels is adapted to this standard of jumping and, despite what you might think, it actually makes things easier as you get used to it as it "guides" you. This ultimately helps us to better evaluate distances during the match.
Fourth: the level of challenge. Although many critics and users have labeled it as a "retro-hardcore game", it should be noted that it is actually easier than some standard platforms of the 16-bit era of the 90s.

Checkpoints can be found in the middle of each level and before entering the next level, you have infinite lives (unless you are playing at the most advanced difficulty levels). The levels themselves are not excessively long and are “only” 6 in the main storyline, so with a little practice and memory it is not difficult or destructive.
The enemies do not act in a causal way (except for the spectra), a great help in the department of musculoskeletal memory. The only thing that I personally consider "difficult" for new players is the fact that they don't have a checkpoint before boss fights.

Overall I must admit that as a fan of this type of games I can say with deep honesty that the Crazy Viking Studio have succeeded.
It is also graphically beautiful with several references to the classics of the past and I have also seen tips from Shadow of the Beast and Lionheart on Amiga.

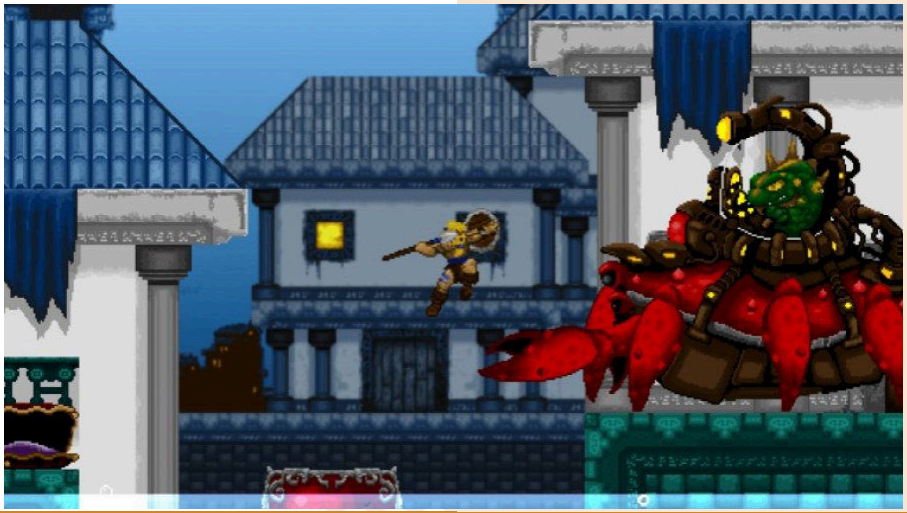
The audio is beautiful and creates the right atmosphere.
A product to try and that can even be defined better than most of the classics that were in the game room or on Super Nintendo.

by **Carlo N. Del Mar Pirazzini**

FINAL SCORE

» Gameplay 90%
Perfect control system and level design worthy of the greatest classics of the genre.

» Longevity 90%
The infinite lives are not an exaggeration because the game will punish you! It will do so in a devastating way, but it will also make you scream "One more time".



DELTA

Year: 1987
Publisher: Electronic Arts (USA), Thalamus
Genre: Shoot'em up
Platform: Commodore 64

A short time ago, I had decided to play Armalyte since at the time I had not played it, so before uploading it to the emulator, I checked the net from different sources, to know the plot, the story and many other things about the game itself; personally before starting a game I want to know it accurately as a general who studies the enemy army. A piece of information that had completely gone unnoticed is that Armalyte was the second in a series of video games! And so I asked myself: "but which was the first? Why didn't they ever talk about it?" Maybe it wasn't as successful...

The first game was called Delta and just as I had hypothesized, it was a game that did not go under the spotlight much compared to the second; Delta is presented as the classic shoot'em up with horizontal scrolling, from left to right, in which we drive the now famous spaceship of the 80s, shooting continuously at everything that moves on the screen. During the levels we will have some upgrades to collect, marked by some blue square blocks and that will appear on the screen only if we destroy all a wave of enemies.

Attention! In addition to the blue blocks that will give us upgrades such as additional shots, higher speed etc. there will also be gray blocks with the upgrades not unlocked and that if collected, will destroy the spaceship thus losing one of the three lives available!

Destroying all the enemy waves is an extra stimulus to increase the score and win extra lives in the shortest time and often.

The sound is composed only of the shots and the noise of the upgrades taken, on the other hand from a shooter could not be expected much and for a deserving background music, we had to wait a few more years.

The graphic level, on the other hand, struck me positively: the second level probably set near a rocky planet and the robot snake that crawls on the screen was very beautiful.

If at the time you were looking for a game that could have kept you busy for a long time or which was worth the 15 pounds collected for an original game, this one had and has 32 levels to offer. This game has the classic difficulty of shoot'em up of the 80s, that we all know well, and in addition there are also many places to explore as well as enemies to blast.

Once you have finished the 32 levels (and if you know someone who has done, send me an email, at any time!) there will be the colossal second chapter waiting for you! We have already discussed it separately, for now it is better not to reveal the ending and think about Delta.

But I can give you a revelation, or rather a tip that will be better known right away, since the third level will not be difficult to reach. Beware of upgrades you take! Let me explain better: if you take the upgrade to make the spaceship faster, it will serve to avoid the columns at the third level, but if by any chance you take it back at the end of the second, when you already have it, you will not make the spaceship even faster, but you will make it return to normal speed (...speed is a big word) so you can't avoid those hateful and unpredictable columns.

With this I wish you a happy autumn and a good return to school and work, hoping that you have had a great holiday browsing our magazine from the beach (...or mountain).

by **Daniele Brahimi**

FINAL SCORE

» Gameplay 70%
Just get used of it and... adjust accuracy.

» Longevity 80%
32 Levels and... we know the genre.

Thanks for everything, uncle Clive!

by Alberto Apostolo

Anyone who owns (or has owned) a Sinclair computer, living through the legendary eighties of the twentieth century and the epic of 8-bit home computers, was shocked to get to know that (after a long illness) Sir Clive Sinclair passed away on Thursday, September 16, 2021. The sad news was communicated to the press by his daughter Belinda.

We like to remember him as a brilliant and visionary computer manufacturer (just think of the lucky ZX series and the least lucky QL). He also tried to put on the market the Sinclair C5, a slow and low electric tricycle that was unsuccessful due to many design and technical problems.

Clive Sinclair (born in Richmond, Surrey on July 30, 1940) started at a very young age by founding in 1961 Sinclair Radionics Ltd which produced radios, TVs, miniature HI-FI systems (and also a horrifying LED watch, the 1975 Black Watch, whose poor quality was the fault of a subcontractor).

During the 70s of the 20th century, his cmpany started the production and sale (even in assembly kits!) of low-cost calculators with LED displays, trying to imitate those produced by Texas Instruments and Hewlett-Packard during the same period (in Sinclair calculators, original construction ideas were designed to save battery consumption).

Among the most curious models there was undoubtedly a wrist calculator, whose commercial failure (combined with the advent of liquid crystal calculators) put Sinclair Radionics in crisis, forcing Clive Sinclair to make use of State financial aid.

With a new company (Science of Cambridge) in 1977 he put on sale the Microprocessor Kit 14 for electronics enthusiasts who could do experiments with little expense.

Later, Science of Cambridge became Sinclair Computer and finally Sinclair Research. The ZX series home computers (ZX80, ZX81 and ZX Spectrum in 1982) were very successful in the UK and European market and Clive Sinclair was given the title of Sir and the affectionate nickname of "Uncle Clive".

The failures of the QL model and the C5 tricycle forced Clive Sinclair to sell the company to Amstrad in 1986.

In 1988, he tried his luck again with Cambridge Computer and the Z88 laptop but times had changed due to PC-IBM compatibility and the demand for higher quality hardware and software.

Curiously, he never made personal use of his inventions. Brilliant and curious about anything, he always brought with him a rule calculator and did not make use of computers and emails. Passionate about poetry, he ran marathons and was a good poker player. Sometimes he liked to discuss engineering with her daughter and her husband (both engineers).

Sir Clive left his daughter Belinda (57 years old), his sons Crispin (55) and Bartholomew (52) together with 5 grandchildren and 2 great-grandchildren.

Clive Sinclair in the '80s

Sinclair ZX Spectrum (1982)

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SHOPPING NOWADAYS

September, life resumes its post-summer holiday routine. Even for young people, who after three months of holidays, having spent their time roaring lazily around, return to their duties, perhaps making great leaps in life, such as the beginning of middle school or high school. For us adults, the routine never comes off completely, even for this reason I envy these guys a little: they are living their most beautiful years, only that they still do not know it. How many times have we found ourselves thinking about that particular moment of life recovered in an old memory of 30 years, often even more? Just a song and the time machine starts. In the case of us video game lovers, a game at an old game can bring back to mind that epochal double with his friend, in the games room at the beach in the early 90s, with behind a bunch of curious intentions to watch. Afternoons in which the hottest hours of the day were spent lazily under the blades of the ceiling fans of some games room: it took us exchanging just a “dime” (1000 italian Lire) for five tokens and spending a few hours of carefree company. The girls in costumes, because they too were hanging around the games room, with which they exchanged looks, excited smiles; and with which, with a bit of a nerve, they could earn a "see you, maybe tonight, here?", and then go to the beach together walking a meter from the ground.

Time passes and everything evolves or almost. Over the years we have witnessed a race to the death to purchase the newest and most powerful gaming platform; and many of us have participated in this long marathon. But this run seems abruptly slowed down: for some time now the new one is not as sparkling as before. We gamers are simple people and we listen to our gut: when the emotion clicks it's done! And today it's not necessarily called Playstation or Xbox. The emotion is called Evercade or Anbernic. It has the plastic features of the dreamy CP-64 or resumes the old forms of the eight-bit progenitor, whether it is old or new. Mini Console chose aside, with which many have managed to realize the dream of a PCEngine, it is also making room for an upcoming Amiga 500, for now in "mini" version, waiting for the "maxi". The really cool thing is that they are coming out, for these dusty and old platforms, games that in the golden age we would have only dreamed: "Demons of Asteborg" in this case is the objective testimony.

There is a lot, a lot of excitement, we have also discussed it in our "bowls club" as you will have had the opportunity to read a few pages back. Spending nowadays has changed, there is no longer the "dime" to spend in the game room, but the choice on how to invest some money is always wider and not necessarily addressed to the Next Gen world. After all, even the undersigned often invests some money in this immense and colorful world made of pixels: the last is a Speedlink Competition Pro to be able to fully enjoy the games for Commodore 64, both new and old. In the end, it all comes back.

Mic the Biker Novarina

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